Henri Hayez de Tuy

87 Planches

BRITISH ENTOMOLOGY;

BEING

ILLUSTRATIONS AND DESCRIPTIONS

OF

THE GENERA OF INSECTS

FOUND IN

GREAT BRITAIN AND IRELAND:

CONTAINING

COLOURED FIGURES FROM NATURE

OF THE MOST RARE AND BEAUTIFUL SPECIES,

AND IN MANY INSTANCES

OF THE PLANTS UPON WHICH THEY ARE FOUND.

BY JOHN CURTIS, F.L.S.

HONORARY MEMBER OF THE ASHMOLEAN SOCIETY OF OXFORD,
OF THE IMPERIAL AND ROYAL ACADEMY OF FLORENCE,
OF THE ACADEMY OF NATURAL SCIENCES OF PHILADELPHIA, ETC.

VOL. III.

DERMAPTERA. DICTYOPTERA.
ORTHOPTERA. STREPSIPTERA.
HYMENOPTERA, PART I.

LONDON:

PRINTED FOR THE AUTHOR,

AND SOLD BY

E. ELLIS AND CO., 92 GREAT RUSSELL STREET, BLOOMSBURY;

SIMPKIN AND MARSHALL, STATIONERS' COURT; AND

J. B. BAILLIERE, 219 REGENT STREET.

1823—1840.

PRINTED BY RICHARD AND JOHN E. TAYLOR,
RED LION COURT, FLEET STREET.

TO

JOHN LINDLEY, Esq. F.R.S. L.S. &c.

Professor of Botany in the University of London,

THIS VOLUME

IS DEDICATED,

AS A TRIBUTE OF RESPECT TO HIS TALENTS,

AS AN ACKNOWLEDGEMENT OF HIS FRIENDSHIP,

AND AS A SINCERE TOKEN OF THE REGARD AND ESTEEM OF

THE AUTHOR.

London, Dec. 1, 1828.

TO

CHARLES LYELL, JUN. ESQ. F.R.S. &c.

THIS VOLUME

IS DEDICATED,

IN TESTIMONY OF THE

SINCERE REGARD AND ESTEEM OF

THE AUTHOR.

London, Dec. 1, 1829.

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4 It is possible this may be the *Ichneumon chrysopus* Lewin, Trans. Linn. Soc. v. 3. p. 4. tab. 2. f. 5.

41 *line* 32 *add* Claws bifid.

58 The genus *Cryptus* has been recently named *Schizocerus*, which, for reasons given in our text, we shall adopt.

69 *line* 29 *for* 2 *read* 3 submarginal cells.

82[b] *line* 6 *for* anterior *read* interior.

141 *line* 3 *for* Order Coleoptera *read* Order Hymenoptera.

164 *line* 33 *for* Coccæ *read* Coxæ.

166 *line* 34, 42, & 47, *for* Coccæ *read* Coxæ.

198 *Anomalon vesparum.* Several males hatched the end of last April, as I anticipated. Is it not probable that they would have lived till females of another brood appeared in the following July?

226 *line* 25 *for* Scutellum *read* Postscutellum.
line 33 *for* Prothorax *read* Antepectus.
line 34 *for* Mesothorax *read* Medipectus.
line 35 *for* Metathorax *read* Metasternum.

234[b] *dele* line 17.
line 26 *for* t. 12 *read* 52.

234[b] *line* 29 *for* Linn. *read* Fab.
line 39 *for* 264 *read* 244.

333[b] *line* 23 *for* lotus *read* latus.

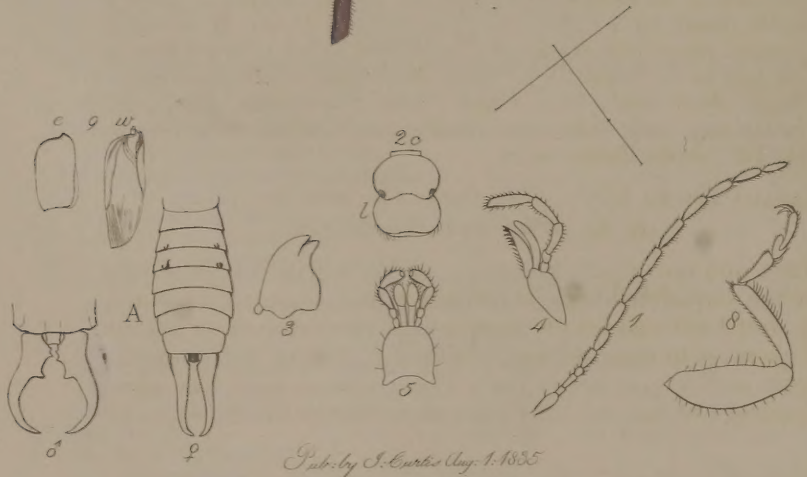
333 *line* 41 *for* 583 *read* 582.

341[b] *line* 11 *for* at *read* of the tarsi.

380 Cinetus dorsiger. The size of this insect was omitted in a few of the impressions: it is the length of this line |.







Pub. by J. Curtis Aug. 1. 1835

560.

FORFICULA BOREALIS.

ORDER Dermaptera. FAM. Forficulidæ.

Type of the Genus, Forficula auricularia *Linn.*

FORFICULA *Linn., &c.*

Antennæ inserted before the eyes, moderately long, filiform, pubescent and 14-jointed, basal joint the stoutest, ovate, narrowed at the base, 2nd the smallest, 3rd as slender but longer, 4th globose, the remainder stouter, 5th as long as the 3rd, 6th a little longer, 5 or 6 following rather longer, the remainder slightly decreasing in size (1).

Labrum somewhat transverse-ovate (2 *l*), attached to the clypeus which is similar in form (*c*), slightly thickened in front, ciliated and a little emarginate.

Mandibles short and trigonate, one strongly bifid at the apex, with the internal margin convex at the base (3), the other slightly concave and forming an angle at the centre.

Maxillæ rather elongated, furnished with 2 slender lobes, the internal one rigid, pointed and bifid at the apex, the interior margin ciliated with spines above and hairs below, external lobe curved, linear, rounded at the apex. *Palpi* rather long, hairy and 5-jointed, two basal joints short, two following long of equal size, a little clavate, 5th rather longer (4).

Mentum ovate, concave at the base. *Lip* elongated, pilose, bilobed, with a transverse suture at the middle. *Palpi* attached to small scapes, triarticulate, rough with short hairs, basal joint globose, 2nd and 3rd of equal length, clavate, the latter with a gland at the apex (5).

Head *ovate:* eyes *small, lateral and ovate.* Thorax *not larger than the head, margined, orbicular-quadrate:* scutellum *concealed.* Elytra *attached beneath the thorax and lying parallel on the back, oblong, coriaceous without nervures* (9 *e*). Wings *ample, with numerous radiating nervures, folded several times, one lying under each elytron, with a small portion projecting beyond it* (9 *w*). Abdomen *broader than the elytra, 9-jointed in the male with a small elevated knot on each side of the 2nd and 3rd joints, and also at the apex; 7-jointed in the female* (A ♀); *the apex furnished with a pair of moveable forceps, curved and denticulated in the male* (A ♂), *curved only at the apex in the female* (♀). Legs, *hinder pair a little the longest:* thighs *incrassated:* tibiæ *simple:* tarsi *triarticulate, basal joint rather long, 2nd cordate, 3rd slender clavate and nearly as long as the 1st:* claws *slender, acute.*

BOREALIS *Leach's MSS.—Curt. Guide, Gen.* 442. 2.

In the Author's and other Cabinets.

WELL and universally known as the Earwig is, comparatively few are acquainted with its œconomy and singular structure, the dread entertained of these insects rendering them objects of aversion to most persons. Earwigs, having the power of flight, and coming out in the evening and night to feed upon vegetable substances, are exceedingly destructive to fruit and

flowers, but it is not difficult to get rid of them by a little care and attention. In most instances amongst the insect tribes the female dies before her eggs hatch, but the parent Earwig lives to rear her young, and DeGeer says that, like the Hen, she broods over and apparently protects and feeds them. The young can run with alacrity, and resemble their parents, except in being smaller, paler in colour, and having no wings, and the abdominal appendages divaricate and are not horny.

The wings of the Earwig are very delicate and pretty, resembling in some measure the *Haliotis*, or Ear-shell; they are most curiously doubled, so that a small horny portion only projects beyond the elytra: the forceps are employed in folding the wings, (they are therefore not wanted in the larvæ or young ones,) and the little tubercles on the back and at the apex of the body probably assist in the operation.

The Forficulidæ found in this country have been divided into 4 genera, and the one before us into 3 species.

1. auricularia *Linn.*—*Panz.* 87. 8. ♂.—neglecta *Mars.* ♀.

 Male 7 lines long; ochreous, head rufous, disc of thorax pitchy, abdomen castaneous, forceps much shorter than the abdomen and very much curved (fig. A ♂). *Female* a little smaller, forceps nearly straight, attenuated and finely serrated internally, except at the apex, which is curved (A ♀).

Common, I believe, everywhere in England and Scotland in flowers, under stones, the bark of trees, &c. from April to Nov.

Mr. Stephens gives the *F. media* of Marsham as a variety of this species, but from the characters in the Ent. Brit. there can be little doubt of its being either the male of *Labia minor* or another species of that genus.

2. borealis *Leach.*—*Curt. Brit. Ent. pl.* 560. ♂.

 Male 8 or 9 lines long; ochreous, antennæ lurid, excepting the basal joint, head rufous, eyes black, disc of thorax pitchy, elytra lurid, the apex of the folded wings internally brown: abdomen castaneous, pitchy at the base and apex, forceps nearly as long as the abdomen, moderately curved, stout, castaneous, ochreous at the base, with a strong tooth on the inside of each towards the base, where there are smaller teeth.

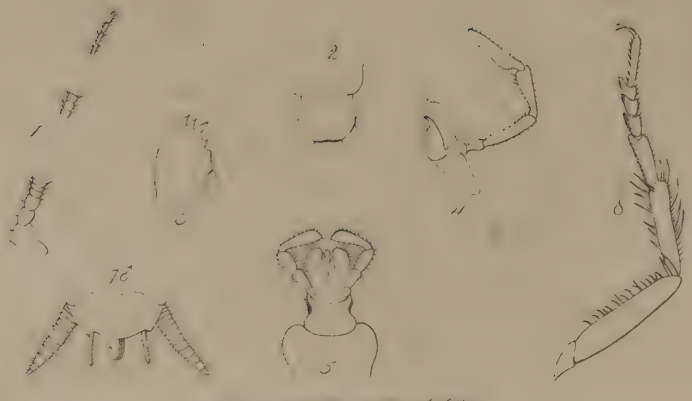
The specimens I take to be females have the forceps less curved than in *F. auricularia*. End of June to end of July, Scotland; hedges, Glanville's Wootton, and in plenty under stones in Isle of Portland and Chesil Bank, Mr. Dale; Yarmouth, Mr. Paget.

3. forcipata *Step.* I know nothing of this insect, but it is probably a variety of the foregoing with longer forceps.

The Plant is *Teucrium Scorodonia* (Wood Sage or Germander).






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556.

BLATTA LAPPONICA.

The Lapland Cockroach.

ORDER Dictyoptera. FAM. Blattidæ.

Type of the Genus, Blatta Orientalis *Linn.*

BLATTA *Linn., Fab., &c.*

Antennæ inserted in front of the face, close to the internal margin of the eyes, long, setaceous and pubescent, composed of numerous joints, basal joint stout subovate, 2nd and 3rd subquadrate, larger than any of the following, which are ring-shaped towards the base, becoming quadrate at the middle and oblong at the apex, as represented at fig. 1.

Labrum exserted, suborbicular, but truncated at the base (2).

Mandibles short and stout, with 4 or 5 teeth at the apex, the 3 upper ones strong and acute, a membranous margin towards the base on the inside, forming a little lobe above (3).

Maxillæ with an internal lobe acute at the apex, dilated and ciliated internally, external lobe longer, fleshy, rounded and naked. *Palpi* long, rough with short hairs, and 4-jointed, basal joint subobconic, 3 following long of equal length, the 3rd clavate, 4th sublanceolate and suddenly narrowed at the base (4).

Mentum short, convex at the base, notched on the sides. *Lip* elongated, composed of 2 broad lateral rigid lobes, with 2 narrow ones at the centre and a fleshy hollow one behind. *Palpi* attached to the sides near the base, pubescent, triarticulate, basal joint short obovate, 2nd a little longer, 3rd the longest clavate and truncated obliquely (5).

Head *ovate, bent under the breast and concealed beneath the thorax:* eyes *lateral and kidney-shaped:* ocelli *none?* Thorax *semicircular, the base convex:* scutellum *concealed.* Elytra *coriaceous, one lapping over the other, with numerous nervures.* Wings *ample, folded longitudinally, with numerous nervures.* Females *sometimes apterous.* Abdomen *flat and oval, terminated by* 2 *jointed lobes and* 2 *slender appendages with a central curved one in the male* (7 ♂). Legs *rather long:* coxæ *elongated and stout:* thighs *stout with a series of spines beneath:* tibiæ *clothed with very strong moveable spines; anterior the shortest, posterior the longest:* tarsi 5-*jointed, basal joint the longest, terminal one long and slender:* claws *curved and acute* (8).

LAPPONICA *Linn.—Curt. Guide, Gen.* 445. 6.

Ochreous, antennæ, disc of thorax and abdomen, except at the apex, piceous; elytra with the oblique costal nervures dotted with brown, the subcostal one having 4 or 5 small spots, the space beneath brown thickly reticulated with ochre: wings iridescent, pale fuscous, a space on the costa and another below it, towards the apex, darker: legs piceous, coxæ and base of tarsi ochreous.

In the Author's and other Cabinets.

As volumes might be filled with the histories of the different species of Cockroaches, which are very numerous, and appear to be distributed over every part of the earth, I can only make

a few remarks on the well known Cockroach, or Black-beetle as it is erroneously called, of our kitchens and houses, and must refer to DeGeer, Kirby and Spence, and other writers, who may be consulted with profit and amusement.

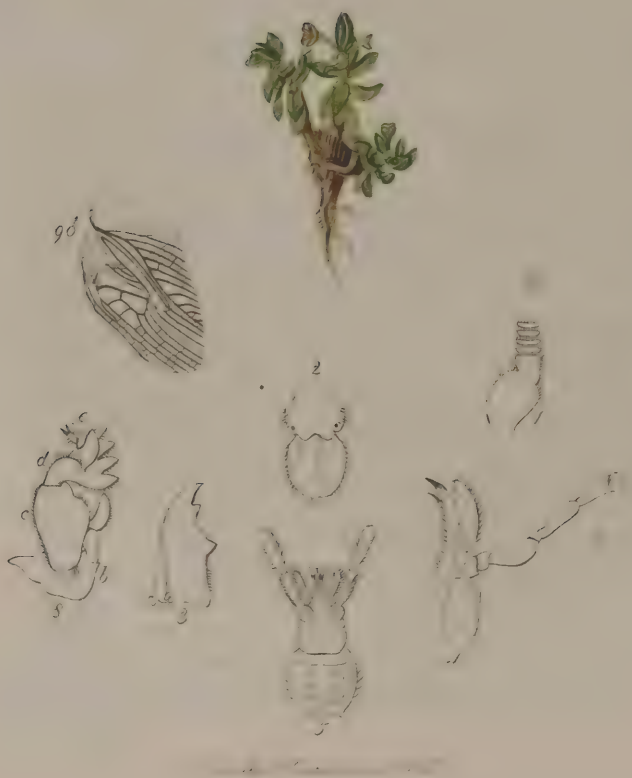
The female lays an oval bag containing 16 eggs; and after having carried it about at the extremity of her body, by means of her forceps, until she has found a convenient place, she deposits it: out of this horny bag the young Cockroaches issue, and rapidly increase in size until they arrive at the perfect state (having passed through that of the pupa), when the males become winged, but the females remain apterous. They are most active animals; and being nocturnal, very voracious, and omnivorous, they are very destructive in houses where they abound. Traps are employed for catching them, and *common* wafers that are coloured with *red-lead* strewed about before going to bed are said to be very effectual in destroying them, and probably sprinkling spirits of turpentine in their haunts would drive them away. It is said that some species of *Sphex* destroy them, and the Evania, a genus illustrated in our 257th plate, is one of its parasites. In Russia and Finland *B. Orientalis* is a perfect pest, and although it seems to be naturalized everywhere, no one can determine whether it was originally a native of Asia or of South America, one of the many proofs of the necessity of speedily recording the geographical distribution of insects, which is intimately connected with the constants of nature proposed by Mr. Babbage.

There are 11 species registered as inhabitants of England; amongst them:

4. B. germanica *Linn.*—*Don.* 10. 341.—*Kirby & Spence*, *t.* 2. *f.* 3. Found in houses in London and Bristol from March to July.
6. Lapponica *Linn.*, figured in our plate, is sometimes abundant in the New Forest, on the Fern, the end of May and beginning of June; I have taken it there on the wing: near Reading it occurs on the White-thorns.
7. perspicillaris *Turt.*—Lapponica *Fues. t.* 49. *f.* 11. End of Sept. 2 females? on Holly-trees, New Forest, Mr. Dale.
8. Panzeri *Step.*—germanica *Panz.* 2. 17. . Beginning of July, middle of Aug. off Junci, top of Cliff, Black-gang Chine; middle of Aug. found the pupæ under stones on the beach, Ventnor, and the imago at Bourne Mouth.
10. livida *Fab.*—lapponica *Don.* 10. 332. May, Oaks, Chisslehurst and Bexley, at Mount Misery and the New Forest; middle of June, under stones, Bourne Mouth and Lulworth, Mr. Dale; middle of July, under stones, side of Cliff, Dover, J. C.
11. pallida *Oliv.* June, on trees, Abury, Devon, Mr. Ingpen.

The Plant is *Pulmonaria* (Lithospermum Lehm.) *maritima* (Sea Lungwort).




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456.

GRYLLOTALPA VULGARIS.

The Mole-cricket, Jarr-worm, Eve Churr, or Earth Crab.

ORDER Orthoptera. FAM. Achetidæ.

Type of the Genus, Gryllus Gryllotalpa *Linn.*

GRYLLOTALPA *Ray, Lat., Curt.*—Acheta *Fab.*—Gryllus (Acheta) *Linn.*

Antennæ inserted before the eyes, shorter than the thorax, slightly setaceous, pubescent and composed of from 60 to 110 joints; basal joint the stoutest, somewhat ovate, 2nd oblong, and larger than the following, which form very narrow rings at first, varying a little in their length, but towards the apex they are longer and somewhat globose (1, the basal joints).

Labrum exserted, flexible at the base, nearly orbicular and convex, the margin fringed with bristles (2).

Mandibles not large, elongate-trigonate, a little curved at the apex, with a triangular tooth below on the inside, and another at the centre, with a third behind it, smaller in one mandible than in the other; a longitudinal line of hairs down the outside and a few on the inside towards the base (3).

Maxillæ elongated, terminated by a curved acute horny lobe with a very slender and acute tooth beneath, and a long curved palpiform lobe outside, fleshy at the apex. *Palpi* long and 5-jointed, 2 basal joints transverse, the others long and equal, 3rd the stoutest, compressed, very convex outside, 4th and 5th subclavate, the latter terminated by a globose fleshy membrane (4).

Mentum suborbicular. *Lip* elongated, terminated by a cordate fleshy lobe, from the base of which arise 2 stiff parallel lobes, and on each side 2 stout rigid and pilose ones, all of the same length, (these appear to be additional Palpi). *Palpi* inserted below them stout rigid and triarticulate, basal joint subglobose, 2nd and 3rd long of equal length, the former very pilose, the latter ovate and fleshy at the apex (5).

Head *conical:* eyes *small, nearly lateral:* ocelli 2, *minute, placed between the eyes.* Thorax *ovate, concave before.* Elytra *partially lying one over the other, the cells at the base more irregular in the male* (9 ♂), *than in the female.* Wings *ample, reticulated, longer than the body, folded longitudinally and lying upon the back when at rest.* Abdomen *large nearly alike in both sexes, with a setaceous pubescent and hairy process on each side the penultimate joint, as long as the antennæ; the apex divided into 3 short lobes in the female:* ovipositor *none.* Legs, *anterior very strong and dilated, posterior formed for leaping.* Coxæ *large, especially the anterior* (8 *b*). Thighs, *anterior short and broad, with a sharp compressed tooth at the base* (*c*); *hinder pair long and incrassated.* Tibiæ *of fore legs trigonate palmate, the apex divided into 4 strong teeth* (*d*); *posterior long, furnished with strong spines outside towards the apex.* Tarsi *triarticulate, anterior compressed and trigonate, inserted on the side of the tibia, 2 first joints produced on the inside and acute, the 1st large, 3rd small ovate* (*e*); *1st and 3rd joints long and the 2nd globose in the other feet.* Claws *simple and small, straight and unequal in the fore feet.*

G. vulgaris *Lat.—Curt. Guide, Gen.* 446. 1.—Gryllotalpa *Linn.*

Velvety brown above, dark ochreous beneath; margins of thorax tawny: elytra dull yellowish white, brown towards the base and costa, nervures dark brown: wings dirty white, with the costa, a longitudinal stripe below it, and many of the nervures brown: anterior tibiæ and tarsi subcastaneous, piceous at the apex.

The Mole-cricket is one of the largest Insects inhabiting Britain; its structure is wonderful and its œconomy most interesting. In its perfect state it is capable of flight, and I suspect, from the resistance the thorax and elytra offer to water, that it is able to swim. Its fore paws are beautifully adapted for burrowing in the ground, and their power is prodigious; according to Roesel it commonly employs a force equal to the counterpoise of 2 or 3 pounds: there is a large tooth at the base of the anterior thighs which meets the interior margin of the tibia when bent back, and this receiving and protecting the tarsus when in the act of digging or burrowing, altogether form a large toothed sort of hoe or shovel: they are able to run backward as well as forward with great facility in their burrows; and to warn them of approaching danger in retrograding, as Professor Kidd has justly observed, they are furnished behind with 2 appendages similar to their antennæ, but not jointed*.

They live probably the year round, and are found in gardens, meadows, peat bogs, by the sides of ponds and streams, in dung-hills, pea and barley fields, &c., in most parts of England, particularly towards the south; they feed on potatoes, and the roots of grass and corn, sometimes causing great mischief, it is said, to the crops in Germany. Dr. Kidd says they prefer raw meat, and will attack each other, when the victor devours the flesh of the vanquished, but that they can live 9 or 10 months without food. I have kept a mole-cricket in a cage, but it has always managed to escape; and so interesting are its habits and history, that I should recommend those who amuse themselves by keeping mice and other animals to obtain some of the crickets, and they may be rewarded by some important and curious discoveries; for this insect is supposed to be the "Will o' the wisp," the "*ignis fatuus*," about which so much has been said and so little proved, the phantom that has eluded the vigilance of the naturalist and the curious for ages! They can emit a sound more shrill but softer than that of the frog, and Dr. Leach says the male sings in the evening by rubbing the elytra together.

I am not aware that any one has been able to detect an external sexual character; I am therefore happy in observing that after ascertaining the sexes by dissection, I discovered that the *elytra* are different. It is a female that I have represented flying, and on comparison it will be seen that the elytron (*fig.* 9 ♂), which is the right-hand one of a male, has nervures very different to the other sex: the same peculiar structure is visible in this as in Acrydium (pl. 439.), the inner edge having more the appearance of a costa than the outer one. The males seem to be uncommon; I have seen but 2, and in them the right-hand elytron lapped over the other, but in all the females it was the reverse.

The Plant is *Montia fontana* (Water Blinks).

* The reader will find an admirable paper on the Mole-Cricket in the Philosophical Transactions, by J. Kidd, M.D., F.R.S., &c.



ACHETA SYLVESTRIS.

Order Orthoptera. Fam. Achetidæ *Leach.* Gryllides *Lat.*

Type of the Genus, Gryllus domesticus *Linn.*

Acheta *Fab., Lea., Sam.*—Gryllus *Linn., Lat.*

Antennæ as long or longer than the body, inserted close to the eyes in front of the face, setaceous, composed of innumerable transverse joints, the basal one very large and globose (1).

Labrum transverse-oval, slightly ciliated (2).

Mandibles strong, subquadrate, truncated obliquely, externally convex, the apex crenate-dentate (3).

Maxillæ short, with a horny lobe on the inside, terminated by 2 very acute teeth and ciliated internally; external lobe palpiform, biarticulate? the basal joint or process short, 2nd long, slightly curved and rounded at the apex. *Palpi* long pubescent, 4-jointed, 1st joint not very short, attenuated and curved at the base, the remainder nearly equal in size and length, the 3rd and 4th truncated obliquely, especially the latter which is hollowed at the apex (4).

Mentum large, transverse, dilated anteriorly. *Labium* long and fleshy, dilated at the base, terminated by 2 conniving, articulated lobes, with 2 acute ones arising from their base and meeting in the centre; behind them is a large hollow fleshy appendage. *Palpi* inserted on each side the labium towards its base, attached to 2 subglobose scapes, triarticulate, basal joint short, incrassated at the apex, 2nd longer and robust, 3rd the longest, subclavate, somewhat ciliated internally (5).

Eyes *lateral.* Head *large subglobose, as broad as the* Thorax *which is more or less quadrate.* Abdomen *rather short and thick, producing 2 long lateral setaceous tails; the female furnished with a long porrected* Ovipositor. Elytra *veined differently in the sexes, with reticulated* Wings, *frequently longer than the body and sometimes none.* Legs; 4 *anterior short, posterior pair formed for leaping, the* Thighs *very robust,* Tibiæ *producing a double row of spines and several long curved ones at the apex.* Tarsi *triarticulate, basal joint long, with short spines down the back and terminated by long ones, 2nd joint very obscure, 3rd simple.* Claws *curved.* Pulvilli *none,* (8, *a portion of hind leg*).

Sylvestris *Fab. Ent. Syst.* 2. 33. 18.

Male. Ochreous inclining to ferruginous. Antennæ fuscous. Head black, shining, with the margin of the eyes and a pentagon in front of the face ochreous. Thorax pilose, the back spotted and the sides entirely black. Elytra not quite covering the body (7 a), piceous, the principal nervure and the base pale. Abdomen pubescent, black, obscurely spotted with ochre (b), tails pilose (c). Legs variegated with black.

Female. Elytra very short, dirty ochre, sides and nervures piceous. Wings none.

In the Cabinets of Mr. Dale and the Author.

Although the chirping of the Cricket is familiar to most persons, yet few comparatively are acquainted with its form. During the summer the heaths resound with the singing of the merry Field-Cricket; and the incessant vibration of the House-Cricket is to some persons agreeable, whilst to others it is very annoying. Abundant as the former species must be, I have never seen it alive; but of the latter I once saw in a bakehouse, countless multitudes in every stage of growth, from those that were just emerged from the egg to the perfect insects. And in a kitchen I have witnessed one running over the hot embers, immediately after the fire had been raked out, in so careless a manner that it was miraculous that its delicate wings were not scorched; and his habitation beneath the grate must have been a very warm retreat.

Crickets live underground, forming their burrows by means of their strong jaws; the labium assumes the form of maxillæ, and behind it are a lip and 2 slender lobes, bearing in this respect as well as in the oviduct, a considerable analogy to the Tenthredinidæ.

The species found in this country are

1. A. domestica *Linn.*—*Don.* 12. 409.—*Panz.* 88. 6 *&* 7.
 This insect lives through the year, and is very destructive in houses, injuring wet linen, feeding on bread, &c. They may be taken like wasps by bottles filled with beer.
2. A. campestris *Linn.*—*Don.* 12. 432.—*Sow. Brit. Mis. tab.* 65.—*Panz.* 88. 8 *&* 9.
 Stewart says, "These insects live in holes, in dry soils, making a very curious subterraneous abode, with regular cells. They are solitary beings: sitting in the entrance of their caverns; they chirp all night as well as day, from the middle of May to the middle of July; the noise they make is probably to allure the females, for the males alone make the chirping. They begin to appear and form their holes in March, and in August these holes are obliterated." I have been informed that in France, children decoy these insects from their burrows by inserting a fly attached to the end of a horse-hair.
3. A. sylvestris *Fab.*—*Curtis Brit. Ent. pl.* 293. *female.*
 Mr. Dale first discovered this insect amongst dead leaves in a gravel-pit, the middle of August, near Lyndhurst in the New Forest; and I have found the pupæ on a dry bank at the same place, the beginning of June.
4. A. italica? *Fab.*—*Panz.* 22. 17.—pellucens? *Scop.*
 A single specimen was taken in Norfolk in June, and is in Mr. Haworth's cabinet.

The plant is *Sisymbrium tenuifolium* (Wall Rocket).





82.

ACRIDA BINGLEII.

Order Orthoptera. Fam. Gryllidæ *Leach.* Locustariæ *Lat.*

Type of the Genus Gryllus viridissimus *Linn.*

Acrida *Kirby.* Conocephalus *Leach.* Locusta *Fab., &c.* Gryllus *Linn.* *Antennæ* as long as the body, setaceous, inserted close to the internal margin of the eyes, composed of innumerable small joints, irregular in their length, basal joint dilated, 2nd short, 3rd rather longer, attenuated (f. 1).

Labrum membranaceous, orbicular, dilated at the base (2).

Mandibles short, trigonate, internal edge sinuated, in some long, acute, and dentated (3).

Maxillæ slender, internal lobe horny, bifid, with a 3rd tooth below the apex, external lobe membranaceous, obtuse, with a few short hairs. *Palpi* 5-jointed, 1st joint very short, 2nd short, the following long clavate, terminal joint the longest, truncate (4). *Mentum* narrowed anteriorly (5 b). *Palpi* hairy, 3-jointed; 1st joint short, 2nd longer cylindric, 3rd long, clavate, truncate (c). *Lip* bipartite orbicular, each lobe having a palpiform process on the internal edge (a).

Head *short, vertical, sometimes acuminate.* Thorax *convex, compressed, flat above, lobed behind.* Abdomen *short, thick.* Ovipositor *long, straight, or recurved.* Elytra *and* Wings *deflexed, the males having a transparent cell at the base of the elytra* (9 a), *in some with rudiments only of elytra, in others entirely wanting.* Anterior legs *short, posterior pair very long, formed for leaping.* Tibiæ *serrated, posterior with several strong spines at the apex.* Tarsi *4-jointed, the penultimate joint bilobed, the 1st joint having a lobe on each side near the base in the posterior pair* (8 *apex of tibia and tarsus of hind leg.*)

Obs. *The dissections are taken from* L. grisea *F., that species being nearest allied to* A. Bingleii. *The elytron of the male is from the latter species.*

Bingleii *Dale's MSS.*

Male brown, tinged with green. Head rounded, pale and dull green. Thorax of the same colour, slightly carinated, dilated behind. Abdomen piceous, edges of the segments pale. Elytra pale fuscous, tinged with green, spotted with brown, the central spots the largest, interior margin green towards the base. Wings transparent greenish at their base. Legs griseous-yellow; posterior thighs green at their base, variegated with brown. *Female* dull and pale ochraceous, variegated with brown. Abdomen pale down the back; piceous on the sides with irregular pale margins to the segments. Ovipositor slightly recurved, brown with a rosy tinge.

In the Cabinets of Mr. Dale and Mr. Haworth.

These insects are well known by the incessant chirping which they make in the evening and during the night; a specimen of *Acrida viridissima* that I kept, feeding it with flies, constantly began to sing at twilight; and by placing a candle in the room, I could distinctly see that the sound was produced by chaffing the anterior margins of the elytra together when at rest.

Greatly as this family has been divided since the days of Linnæus, it is difficult to find characters that will embrace even the insects that are now included in this genus. The name *Conocephalus* which Dr. Leach gave to these insects has been dropped, because it applies to an exotic group with conical heads that will not associate with any other; and Mr. Kirby's name has been adopted, as it is intended to follow the views taken in the Zoological Journal by that learned author.

In giving the following arrangement, which I hope will be found useful, I beg to acknowledge my obligations to J. C. Dale, Esq., for his valuable information and assistance.

A. Living upon or under the ground. Males with an ocellus at the base of the elytra. Antennæ not spotted.

* With perfect elytra and wings.

1. A. viridissima *Linn.*, *Donovan v.* 4. *pl.* 130.
2. verrucivora *Linn.*, *Panz. fasc.* 89. *pl.* 20 & 21.
3. Bingleii *Dale*, *nob.*
4. grisea *Fab.*, *Sowerby's Brit. Mis. tab.* 64.

** With imperfect elytra and wings.

5. brachyptera *De Geer.*
6. Kirbii *Dale.*
7. fusca *Fab.*, *Panz. fasc.* 33. *pl.* 2.

*** Apterous, or with rudiments of elytra only.

8. aptera *Turton.*

B. Inhabit trees. Without an ocellus. Antennæ spotted.

* With complete elytra and wings.

9. varia *Fab.*, *Don. v.* 3. *pl.* 79.

** With incomplete wings.

10. clypeata *Panz. fasc.* 33. *pl.* 4.

Mr. Dale informs me that *A. Bingleii* was first taken at Goodwin's Croft, near Christchurch, Hampshire, and given to the late Rev. W. Bingley. Mr. Dale's female was taken 30th July, 1818, by the side of a barley field near Christchurch, and his male at the same place the 14th of August following. This species has been confounded in the Entomological Transactions with *A. verrucivora*, a very fine species discovered near Rochester by Professor Henslow, the end of August; it is employed by the Swedish peasantry to destroy warts, from which circumstance it receives its name.

The plant figured is *Carex præcox* (Vernal Carex).



608.

LOCUSTA CHRISTII.

ORDER Orthoptera. FAM. Gryllidæ *or* Locustidæ.

Type of the Genus, Gryllus migratorius *Linn.*

LOCUSTA *Leach, Curt.*—Gryllus *Linn., Fab., Charp.*—Acrydium *Lat.*

Antennæ inserted in a cavity before and between the eyes, not longer than the thorax, slender, filiform and composed of between 20 and 30 joints, basal joint stout and subglobose, 2nd small subovate, 4 following smaller and unequal, 7th and 8th rather longer and broader, the remainder decreasing in length to the apex, (1, eight of the basal joints).

Labrum very large, orbicular-quadrate, notched on the sides, the anterior portion forming a transverse lobe, with all the angles rounded, the centre emarginate (2).

Mandibles very thick and trigonate, the internal apex thin, furrowed and somewhat serrated (3).

Maxillæ terminated by a strong corneous process on the inside, bifid at the apex, with a large external, curved, hollow lobe. *Palpi* a little longer than the labial, filiform, pilose and 5-jointed, 2 basal joints very short, 2 following of equal length, a little elongated, 5th a little the longest, slightly clavate, truncate and hollow at the apex (4).

Mentum short and broad, lunate. *Labium* large, subcordate, coriaceous, cleft before, forming 2 semiovate lobes, slightly pubescent. *Palpi* short, attached to the sides near the middle of the lip, triarticulate, basal joint obovate, 2nd longer, cylindric, 3rd as long, subclavate, truncated and hollow at the apex (5).

Males *often smaller than the females.* Head *large, crown semiovate, with the oval* Eyes *on each side;* face *ovate, being broadest towards the mouth* (1 *), *a broad ridge above, extending down the middle:* ocelli 3, *forming a large triangle at the upper part of the face between the eyes,* 2 *being above, and one below the antennæ.* Thorax *corset-shaped, broadest behind, generally carinated, the base more or less produced.* Abdomen *attenuated, with a tympanum on each side at the base* (7), *the apex terminated by* 2 *short filaments and a lobe in the males* (♂), *and by* 2 *filaments and* 2 *pointed lobes above and* 2 *similar ones beneath in the females* (♀). Wings *extending beyond the body, especially in the males and very much reticulated;* superior *deflexed, coriaceous and narrow;* inferior *membranous very ample and folded.* Legs, 4 *anterior simple, hinder very long and powerful, formed for leaping:* thighs, *posterior very stout at the base, attenuated, with longitudinal and oblique transverse elevated lines on both sides:* tibiæ, *hinder with* 2 *series of sharp spines outside, and larger ones at the apex:* tarsi *triarticulate, basal joint oblong,* 2*nd short, lobed beneath,* 3*rd clavate:* claws *acute;* pulvilli *one-lobed.*

CHRISTII *Curt. Guide, Gen.* 449.

In the Cabinets of Miss Ball and the Author.

Locust being the name used in Holy writ I have retained it in preference to that adopted by most authors. The history of these destructive insects is too well known to require repetition here; it is evident from the dissection of the mouth that its mandibles are admirably adapted for cutting herbage, and its lips and maxillæ for forming a large inclosure to retain its food whilst it is eating.

Upwards of 20 species have been found in this country, which I shall enumerate, as many of the names in the Guide have been superseded by the appearance of Zettersted's and Charpentier's works.

1. Christii *Curt. Brit. Ent. pl.* 608. ♀.

Pea-green, antennæ subferruginous; an ochreous and purplish longitudinal line behind each eye, face with 2 lines down the middle and the mandibles blue-black: thorax triangular behind, with a sharp convex carina: abdomen reddish-brown marbled with greenish-yellow: elytra more or less spotted, nervures reddish-brown, variegated with green towards the base: wings delicate yellow inclining to green, the apical portion more grey, nervures brown and piceous, reticulations ochreous: hinder legs pale green; thighs blue internally beneath, with a large black space from the base to the middle, a blackish band beyond it and a ring near the apex, which is brown above: spines of tibiæ tipped with black; tarsi grey.

This differs so materially from the specimens of *L. migratoria* I have received from Germany, that I consider it to be a distinct species, and have therefore named it after Wm. Christy, Esq., who took it upon some French-beans in a garden on the Clapham-road in July 1826, and very handsomely added it to my cabinet. Independently of the wide difference in colour, the thorax is not of the same shape as *L. migratoria*, the carina forms a depressed arch and is rather more pointed behind. Another specimen, captured last September at Ardmore in the county of Waterford by Miss M. Ball, has been obligingly transmitted to me for my inspection by Robert Ball, Esq. of Dublin: it is of the same sex as the one figured, but the elytra are much more spotted.

2. migratoria *Linn.*—*Don.* 8. 270.
3. flavipes *Gmel.*—*Sam. pl.* 4. *f.* 19.
4. viridula *Linn.*—*Sow. B.M.*
5. aprica *Ste.*
6. dorsata *Zett.* [*pl.* 73.
7. parallela *Zett.*
8. miniata *Charp.*
9. lineata *Panz.* 33. 9.
10. rhomboidea *Schæf.?*
11. elegans *Charp.*
12. bicolor *Charp.*
13. rufipes *Charp.*
14. biguttula *Linn.*
15. mollis *Charp.*
16. varipes *Ste.*
17. rubicunda *Ste.*–*Don.* 3. 79. 2?
18. venosa *Linn.?*
19. hæmorrhoidalis? *Charp.*
20. tricarniata *Ste.*
21. parallela *Zett.* longicornis Hage.
22. montana *Charp.*
23. pedestris *Linn.*–*Panz.* 33. 8.

The Plant is *Rhynchospora alba*, White-headed Rush-grass.



439.

ACRYDIUM SUBULATUM.

ORDER Orthoptera. FAM. Gryllidæ *or* Locustidæ.

Type of the Genus, Gryllus bipunctatus *Linn.*

ACRYDIUM *Geoff., Fab., Curt.*—Tetrix *Lat.*—Gryllus (Bulla) *Linn.*

Antennæ inserted close to and between the eyes, approximating, short, subfusiform and 15-jointed: basal joint stout and ovate, 2nd globose, 3rd longer than the two following, the 4th being the smallest joint, 6th and 7th shorter than the remainder which are rather broader, 14th joint minute, 15th pear-shaped (1).

Labrum orbicular (2).

Mandibles short and subtrigonate, one with 4 teeth at the apex and a large broad striated one near the middle (3); the other with 3 apical teeth and a smaller obtuse one at the middle.

Maxillæ long, horny, narrow, curved and trifid at the apex, with an equally long external lobe, attenuated, with 2 or 3 articulations or transverse sutures and terminated by a minute fleshy apex. *Palpi* longer than the lobes, filiform, 5-jointed, slightly pilose, basal joint scarcely longer than the 2nd which is the smallest, 3rd and 4th nearly of equal length, 5th a little the longest and slightly thickened and truncated at the apex (4).

Mentum subtrapezate, truncated before, very concave behind. *Lip* large, forming a cup on the inside, composed of 2 conniving lobes above, united at their base, with 2 small lobes between them towards the apex. *Palpi* attached to 2 scapes at the anterior angles of the mentum, triarticulate, 1st and 2nd joints short, 3rd as long as the other 2, stouter clavate and pilose, terminated by a vesicle (5).

Mouth *received into the anterior margin of the antepectus.* Head *with the crown short bounded by a sharp semicircular margin:* face *very long and ovate, with a grooved keel down the centre* (1*): eyes *subglobose, slightly prominent.* Ocelli 3, *two above and one below the antennæ.* Thorax *forming a narrow band, with a keel down the centre;* scutellum *sometimes much longer than the body, trigonate-lanceolate, keeled down the back and acute at the apex.* Abdomen *with* 2 *horny conical lobes at the apex in the males, terminated by* 4 *serrated acute lobes in the females* (7). Wings, superior *minute, appearing as if turned round, somewhat reticulated, with* 2 *elevated lines crossing each obliquely* (9). Inferior *varying in size, sometimes very ample, folded like a fan and concealed under the scutellum* (*which affords them the protection the elytra cannot*), *supported by numerous radiating nervures connected by short transverse ones, the edges crenated.* Legs, *posterior very long:* thighs *dilated, ovate, attenuated to the apex:* tibiæ *with a double series of teeth on the upper edge and armed with strong spines at the apex:* tarsi *triarticulate, basal joint long with* 2 *notches beneath,* 2*nd joint minute,* 3*rd long, clavate* (8†): claws *acute with a tooth beneath near the base: the* other legs *are short and simple, with the* 1*st and* 2*nd joints of the tarsi small.* Pulvilli *none.*

SUBULATUM *Linn. Faun. Suec.* 236. 865.—*Curt. Guide, Gen.* 451. 1.

In the Author's and other Cabinets.

Linnæus calls this division of his genus Gryllus, Bulla (the name of a group of shells), at the same time referring to Geoffroy's work, where it had received the name of Acrydium.

This variable genus is distinguished from the other Locustidæ by its very long scutellum and small elytra or superior wings, which, when at rest, lie close to the sides of the abdomen. They live in fields, on hot and sandy banks, and among short grass and plants on the tops of walls even in cities.

1. A. subulatum *Linn.*—*Curt. B. E. pl.* 439. ♀.—*Sow. Brit. Mis.* 74. 1.—*Don* 15. 521.—bipunctatum *Pz.* 5. 18.—*Sam. pl.* 4. *f.* 18.—*Schæf. pl.* 154. 9. & 10.? and 161. *f.* 2. & 3.

Pale reddish brown, granulated; antennæ ochreous, tipped with piceous, head and sides of thorax brown; scutellum twice as long as the abdomen, slightly recurved at the apex, with a reddish or brown triangular spot on each side towards the base; abdomen pitchy; wings iridescent, costa yellowish brown, nervures pitchy; legs mottled, hinder thighs with a pale stripe outside, and sometimes an oblique white fascia; **1st and 2nd pair of tibiæ annulated with ochre.**

Philippi characterizes 12 varieties of this, and 13 of the following species. I have 1 male and 5 females with the scutellum projecting only a little beyond the abdomen, which appear to me to belong to the above-described insect. Mr. Dale has taken very strong varieties at Whittlesea Mere; also at Glanville's Wootton, from March 15th to July 9th.

2. A. bipunctatum *Linn.*—subulatum *Rœmer, tab.* 8. *f.* 7. *var.* —bifasciatum *Fues. Arch. pl.* 52. *f.* 3.

Scutellum not longer than the abdomen, and slightly curved downward.

Philippi says the antennæ are only 12-jointed, but my specimens have the same number of joints as the former species. From March 27th to October 13th, Hants and Dorset, Mr. Dale; Battersea, Mr. Samouelle.

3. A. nigricans *Sow.* 74. 3.—undulatum *Sow.* 74. 2.?—opacum *Fues. pl.* 52. *f.* 2.?—nutans *Hagen*?*

From $2\frac{1}{2}$ to $3\frac{3}{4}$ lines long. Black or brown, frequently variegated; wings small, back arched and sometimes very sharply keeled; scutellum projecting a little beyond the abdomen, the keel occasionally spotted with ochre, and a black triangular spot on each side towards the base, sometimes with an ochreous stripe down the back from the forehead to the tip of the scutellum. Some varieties have pale ochre spots on the sides of the thorax, and 2 fasciæ outside the posterior thighs, and the legs **are annulated with pale brown or dirty ochre.**

End of August, heaths and sandy places, Ramsdown, Hants, J. C.; from April 8th to October 1st, Dorset, Mr. Dale.

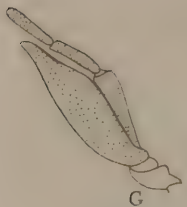
4. A. Pinnula *Curt. Guide* 451. 4.

I suspect it is only a variety of *A. bipunctatum*, for like that species **the under wings are very small.**

The Plant is *Bidens tripartita* (Trifid Double-tooth).

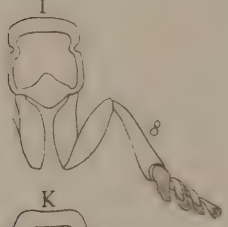



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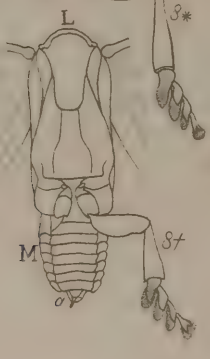

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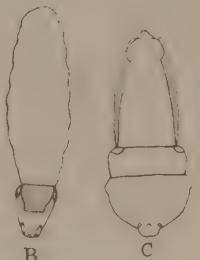

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STYLOPS DALII.

ORDER Strepsiptera *Kirby.* Rhipiptera *Lat.*

Type of the Genus Stylops Melittæ *Kirby.*

STYLOPS *Kirby, Lat., Leach, Lam., Sam.*

Antennæ inserted between the eyes near the crown of the head, membranous, perforated or punctured, composed of 6 joints, the basal one somewhat cup-shaped, 2nd very short, transverse, 3rd produced on the internal side into a dilated hollow lobe extending beyond the 5th joint, 4th large subclavate, 5th smaller subovate, 6th as long, ovate, compressed (D 1, F 1 and G.)

Labrum and *Mandibles* wanting? *Pharynx* visible (E a).

Maxillæ arising between the eyes, very remote at their base, conniving, long, slender, lanceolate and horny (E 3, F 3).

Palpi arising close to the maxillæ (H), large and robust, membranous, indistinctly pubescent, biarticulate, basal joint subreniform, 2nd attached to the oblique apex of the 1st, oblong, somewhat truncated obliquely (E 4, F 4).

Mentum very obscure. *Labium* and *Palpi* none.

Head *sessile, very broad and short, producing a large triangular lobe in the centre.* Eyes *very remote, lateral, globose, composed of numerous hexagons.* Prothorax (I) and Mesothorax (K) *very short rings, not so broad as the head.* Metathorax (D 6) *very large and long, divided diagonally into* 4 *portions and dilated very much on each side, producing a large* Scutellum (D*) *projecting over the* Abdomen (M) *which is small, soft, and composed of* 8 *or* 9 *joints, terminated by an incurved* Oviduct? (a). Anterior wings *short and narrow, attached to the sides of the mesothorax* (D 9, K 9), *subcoriaceous, pubescent, thickened at the costa and inflated at the apex.* Posterior wings *attached to the metathorax* (D 10, L 10), *folded longitudinally when at rest and meeting over the body, very large and membranous, the costa thickened, the nervures very fine.* Legs *alike,* 4 *anterior approximating* (D), 1*st pair attached to the prothorax* (I 8), 2*nd pair to the mesothorax* (K 8*), 3*rd pair very remote attached to the extremity of the metathorax* (L 8†). Coxæ, 4 *anterior very large.* Tibiæ *not spined.* Tarsi *composed of* 4 *joints surrounded by a pubescent membrane, basal joint the largest, terminal the smallest and notched at the apex.* Claws *none.*

Larvæ *inhabiting the abdomens of living Andrenæ, the heads being exserted between the segments* (A, a, b, and B, *one extracted*).

Pupæ *inhabiting the same situations* (C).

DALII *Nobis.*

Intense velvety black. Palpi with the 2nd joint much smaller than the 1st. Antennæ with the 2nd joint very minute, and the 5th shorter than the 6th. Scutellum at the base and abdomen at the sides ochraceous. Superior wings or elytra fuscous; inferior wings emarginate at the posterior edge and narrowed towards the anal angle; milky white, iridescent, the costa fuscous as well as several of the nervures at the base. Legs fuscous.

In the Cabinets of Mr. Dale and the Author.

Until other insects allied to Strepsiptera be found, its natural affinities must remain very doubtful, from the imperfect and peculiar structure of the mouth; and there is not a single Order perhaps that might not be assumed to be related to it by analogy. As I have taken the greatest pains with the dissections, it is hoped they will require no comment in this place: after therefore observing that I consider the third joint of the antennæ merely eccentric,—that it is doubtful whether the horny substances are mandibles or maxillæ, since I believe the palpi to be biarticulate; and that it has been my good fortune to *prove* that the appendages are anterior wings or elytra,—I shall pass on to give Mr. Dale's valuable facts relating to our insects.

"Every specimen of *Andrena barbilabris* I have seen this year, from the 27th April to the 4th June, have contained larvæ, pupæ, or exuviæ of Stylops, from one to three in each. On the 5th May I picked one out with a pin, on the seventh another rather immature, and caught one flying in the hot sun-shine over a quickset hedge in the garden; it looked milk-white on the wing, with a jet black body, and totally unlike any thing else; it flew with an undulating or vacillating motion amongst the young shoots, and I could not catch it till it settled on one, when it ran up and down, its wings in motion, and making a considerable buzz or hum nearly as loud as a Sesia: it twisted about its rather long tail, and turned it up like a Staphylinus. I put it under a glass and placed it in the sun; it became quite furious in its confinement, and never ceased running about for two hours. The elytra or processes were kept in quick vibration, as well as the wings; it buzzed against the sides of the glass, with its head touching it, and tumbled about on its back.

"By putting two bees (*A. labialis*) under a glass in the sun, two Stylops were produced; the bees seemed uneasy and went up towards them, but evidently with caution, as if to fight, and moving their antennæ towards them retreated. I once thought the bee attempted to seize it; but the oddest thing was to see the Stylops get on the body of the bee and ride about, the latter using every effort to throw his rider. A large hole is left in the tail of the bee when the Stylops escapes, which closes up after a time. I have found five species of Andrenæ infested."

The specimen figured was bred from *Andrena labialis*, and presented to me, together with others, for dissection, by my esteemed friend J. C. Dale, Esq., in honour of whom I have named the species. The minuteness of the second joint of the antennæ, the small size of the second joint of the palpi, and the differently formed wings, are sufficient characters to distinguish it from any species hitherto described and figured.


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ELENCHUS WALKERI.

ORDER Strepsiptera *Kirby*. Rhipiptera *Lat.*

Type of the Genus, Stylops Walkeri *Curtis*.

ELENCHUS *Curtis*.—Stylops *Curtis*.

Antennæ inserted in a cavity on each side the front of the head, before the eyes, slender, pubescent and scabrous, longer than the thorax, terminated by 2 long compressed lamellæ, 5-jointed, 1st and 2nd joints short, cup-shaped, 3rd produced on the side and forming a long lanceolate appendage, 4th joint slender, half the length of the 5th, which extends beyond the apex of the 3rd (G).

Maxillæ long, slender, lanceolate and horny (3).

Head *short, producing an obtuse lobe in front and a smaller one on each side.* Eyes *remote, lateral, globose, composed of about* 20 *hexagons.* Collar *or* Prothorax *short.* Mesothorax (K) *longer, with an appendage or* Pseudelytron (9) *attached on each side, exceeding in length the breadth of the mesothorax, clavate, slender towards the base.* Metathorax (6) *large and oblong, divided diagonally into* 4 *portions, the* Scutellum *being the smallest.* Metasternum ? *very large.* Postscutellum (*) *elongate ovate.* Posterior Wings (10) *large, rounded at the apex, punctured and pubescent, with the costa thickened, a few imperfect nervures below it, and a long one running parallel to the internal margin.* Abdomen (M) *slender, composed of* 9 *or* 10 *joints, as long as the trunk but incurved.* Legs *long, hinder pair* (8†) *remote.* Coxæ, *anterior and intermediate very long, hinder short.* Thighs *and* Tibiæ *nearly of equal length, the* 4 *anterior* (8 and 8*) *long slender and curved, the posterior short, and broad towards the apex.* Tarsi *composed of* 2 *joints, slenderest in the* 1*st pair* (W 8) *basal joint forming a lobe beneath, and hollow above to receive the* 2*nd which is subclavate* (W 8_*). Claws *none.*

WALKERI *Curtis's Guide Gen.* 452. *n°* 6.

Dull ochreous-fuscous: eyes black and shining: wings iridescent, pale fuscous, costa and nervures darker fuscous: legs and antennæ pubescent.

In the Cabinets of Mr. Dale, Mr. Haliday, Mr. Walker, and the Author.

THE minuteness and value of these insects have prevented me from ascertaining one or two points with the accuracy I could desire: I hope, however, that some able entomologist may eventually possess ample materials for correcting any error I may have committed and for supplying any deficiencies that may be detected.

The collar is extremely small, and the pseudelytra are much longer than in Xenos or Stylops; they are fixed very low

down on the side and close to the anterior margin of the mesothorax; viewed above they look like pendants for the ears, whence the generic name. The thorax is shorter than in Stylops and more gibbose, as well as the postscutellum. The body is long and slender, but not having been able to get a clear view of the apex in Mr. Dale's specimen (D.) it may not be an exact resemblance of it. The long and slender antennæ are remarkable. The 4 anterior legs attached to the collar and mesothorax, are close together like those of Pulex, and the exceedingly long coxæ enable the insect to porrect them very forward or to place the intermediate nearer the hinder pair as represented in the coloured figure: the tarsi appear to be formed of 2 joints only, which are much more slender in the first pair than in the others. It must be remembered that in Mr. Dale's specimen, the tarsi of the intermediate and the terminal joint in the posterior pair are wanting.

I have not the least doubt that Mr. Walker's and Mr. Dale's insects are the same species, and the differences in the outline figures with regard to the form of the antennæ and legs arise from Mr. Dale's having been drawn in a dry state, whilst that of Mr. Walker (W.) was relaxed in hot water.

Mr. F. Walker first discovered a female? at Southgate amongst grass, 24th June. Mr. Dale next took a male? 11th June 1830, by sweeping some flowers and wheat near Glanville's Wootton, and found it in his net when he returned home; and the end of June 1830 and July 1831 Mr. Haliday took 2 females in sweeping some herbage near Belfast. To all these gentlemen I am indebted for the use of their specimens, and to the last for his kindness in having presented me with one accompanied by the following interesting observations.

"I have no clue to the family it may be parasitic on, for I have not found any bee with the larva in it; the most common in its locality are *Andrena cineraria* & *albicans* and *Halictus rubicundus* & *albipes*. It seems very delicate; the only specimen I could succeed in bringing home alive I put under a watch glass, but having to leave it for an hour I found it dead, though placed in a cool spot. It moved with a vacillating but tolerably rapid gait with the upper wings extended and the lower rapidly vibrating, the abdomen, with which it smooths the wings, twisting freely in all directions. The antennæ are kept apart with the branches divaricated, and the longer one generally bent in an angle at the articulation; the palpi? mostly in motion. All the membranous parts are capable of much dilatation and contraction, and are fully expanded when in lively motion, but contract after death. The wings were cinereous with blacker nervures. Abdomen longer than the rest of the trunk, fleshy, of 8 segments besides the anal one bearing the appendage. The first three are softer, more extensile and versatile than the rest, which have a single row of transverse spots down the back, one on each segment, of stronger consistence and darker colour, also a series of more minute ones down the belly. The colour of the membranous parts is cinereous yellow, the horny plates of a darker blackish-cinereous shade: the ovipositor tibiæ and base of antennæ nearly black, eyes deep black."—Mr. A. H. Haliday's MSS.

The Plant is *Hypochæris radicata* (Long-rooted Cat's-ear).


M
G
G

HALICTOPHAGUS CURTISII.

Order Strepsiptera *Kirby*.—Rhipiptera *Lat.*

Type of the Genus, Halictophagus Curtisii *Dale.*

Halictophagus *Dale's MSS.*

Antennæ inserted in front of the face, rather short, lamellate, 7?-jointed, basal and 2nd joints the stoutest, subquadrate, each of the remainder producing a somewhat ovate lobe on the outside, gradually decreasing in length to the apical one which is inserted at the base of the lobe of the penultimate joint; the lobes are submembranous and ornamented with semitransparent punctures (g).

Trophi *undiscovered* (*the head being closely attached by gum to the card*). Head *broader than the thorax.* Eyes *very remote, prominent and coarsely granulated.* Prothorax *and* Mesothorax *short, the latter with a* Pseudelytron *attached on each side* (9), *they are very slender at the base and terminated by an ovate club.* Metathorax (6) *somewhat scutate, the anterior portion forming* 3 *nearly equal lobes, the* Scutellum *being short and rounded.* Metasternum ? *large.* Postscutellum *very long tongue-shaped and thick, with a long deep groove at the base* (*). Wings (10) *large, minutely punctured, rounded at the apex, with the costa thickened, a subcostal and* 5 *other strong longitudinal nervures and a callous stripe at the apex, the* 2nd *nervure apparently a detached branch of the* 3rd, *which has a short ray near the base of the* 2nd. Abdomen (m) *rather short, a great portion concealed by the postscutellum, composed of about* 8 *joints, terminated by an obtuse process.* Coxæ; *anterior long.* Thighs *rather short.* Tibiæ *short and compressed.* Tarsi *triarticulate, basal joint stout in the anterior pair, the* 2nd *long and slender,* 3rd *small obovate* (8); *nearly of equal length in the posterior pair* (8†), *the apex of each joint produced beneath and submembranous or fleshy.* Claws *none.*

Curtisii *Dale's MSS.*

Black and slightly glossy, clothed with a brown velvety pubescence; antennæ and legs dull brownish ochre; wings slightly tinged with fuscous ochre and obscurely iridescent; nervures brown; tips of the joints of the tarsi and apex of abdomen ochreous.

In the Cabinet of Mr. Dale.

At the close of the last volume I had the opportunity of publishing a second genus of the order Strepsiptera, and through the kindness of my friend Mr. Dale, I have now the pleasure of presenting entomologists with a most interesting insect, which has been named Halictophagus by its captor, from its feeding or living in the larva state in the bodies of the genus Halictus.

Mr. Dale says in his letter, "I took *H. Curtisii* the 15th of last August, in company with the males of *Halictus æratus?* which were in plenty, by brushing some long coarse grass and

thistles close to the sea, on a rock called Durdle Door at Lulworth Cove. In one of the Halicti I found a pupa so exactly at the apex of the abdomen, that I mistook it for an appendage, and killed the bee, otherwise I should have bred the imago, as it was nearly matured. My Halictophagus seemed unable to run in the net, its feet being entangled in the same manner as those of Elenchus, which was the cause, I have little doubt, of the tarsi being broken in my specimen.

"All the Strepsiptera appear to be short-lived, for the Halictophagus died in the evening soon after I arrived at the inn.

"I remember finding, a few years ago, a larva in *Halictus* 4-*guttatus*? which I took in the New Forest in April."

It is unnecessary to point out the differences between Stylops (*pl.* 226.), Elenchus (*pl.* 385.), and Halictophagus: this splendid discovery of Mr. Dale's, which adds a fourth genus to the remarkable order Strepsiptera, if not the most curious, is, I think, by far the most interesting of the whole, from the antennæ being rayed as in some of the Hymenoptera (*Ceraphron Halidayi*, *pl.* 249. and the males of *Eulophus*, *pl.* 133, 1.), or rather lamellated like the club of the antennæ in the Melolonthidæ, and likewise from the greater number of the conspicuous nervures in the wings; notwithstanding these decided characters, we are still unable to find the slightest *affinity* between this and the other orders.

In describing Stylops in 1828, I stated that the third joint of the antennæ was merely elongated into a lobe, and that they were 6-jointed; and I am now fully borne out in my opinion by the structure of those of Halictophagus. I find that Mr. Westwood has been pleased to observe, that I was not the first *to discover* that the pseudelytra were attached to the mesothorax*. However that may be, I was the first, I believe, who *proved it*; and if Mons. Latreille did entertain an opinion that the appendages were elytra, it is far from clear in the *Règne Animal*, and in the *Familles Naturelles* he states that the prébalancers are inserted on the sides of the *prothorax*. Mr. Kirby, misled by Mr. Bauer's drawing, imagined that they were attached to the coxæ of the anterior legs, as represented in the Plate he refers to; indeed they are so placed, that without dissecting the Stylops, it would be utterly impossible from a dead specimen to ascertain to what part they were attached.

I take this opportunity of adding, that Mr. Templeton in examining the nest of *Bombus muscorum*, found a specimen of a Stylops very similar to *Elenchus Walkeri*, if it be not the same, the 7th or 8th of last August in the neighbourhood of Belfast, which induces him to think it may be a parasite of that bee.

The Plant is *Tragopogon porrifolius* (Purple Goat's-beard).

* Mr. Westwood says that I claim the discovery of the attachment of the pseudelytra to the mesothorax; in this he is not quite right; I said, "it has been my good fortune to *prove* that the appendages are anterior wings or elytra." Vol. v. p. 226 a.



41.

CIMBEX DECEM-MACULATA.

Order Hymenoptera. Fam. Tenthredinidæ *Lat.*, *Leach.*

Type of the Genus Tenthredo europæa *Leach.*

Cimbex *Oliv.*, *Fab.*, *Lat.*, *Leach.* Tenthredo *Linn.*, *Jur.*

Antennæ inserted between the eyes, clavate, 6-jointed, first joint cup-shaped, second very short, third very long, fourth and fifth clavate-truncate, sixth oblong, club-shaped, with a transverse suture. (1.)

Labrum small, oblong, rounded at the apex, hairy. (2.)

Mandibles exserted, unequal, robust, acute, with one or two irregular teeth on the inside. (3.)

Maxillæ membranaceous at the apex, with a large hairy lobe near the base of the palpi, extending towards the apex.

Palpi irregular, extending a little beyond the maxillæ, 6-jointed, third joint the longest, fourth somewhat clavate, sixth small, ovate. (4.)

Mentum oblong, dilated anteriorly (5. a.) : *Palpi* scarcely longer than the lip, 4-jointed, gradually increasing in size to the third joint, terminal joint small (b.) : *Lip* membranaceous, with a few hairs above, three-lobed, the centre one narrow, external lobes somewhat hemispherical. (c.)

Clypeus *broad, emarginate.* Ocelli 3. Abdomen *sessile, cylindric in the males, somewhat ovate in the females, first segment especially of the males deeply emarginate above.* Oviduct *not exserted, composed of two lamellæ, which are serrated.* Superior wings *with* 2 *marginal and* 3 *submarginal cells.* Thighs 4 *posterior unarmed, very thick in the males.* Tibiæ *terminated by syphon-formed spurs, obtuse at the apex.* Tarsi *with the penultimate joint a little shorter than the antepenultimate, four first joints with membranaceous appendages* (8. *a fore leg*) ; *the basal joint of the* 4 *posterior tarsi of the males produced into a spine beneath.* (8. a.)

Larva *with membranaceous feet.*

Decem-maculata *Leach Zool. Mis. v.* 3. *p.* 106. *n.* 7. T. lutea *Linn.*? *Fn. Su.* 1534.

Body obscurely villose : black, the abdomen tinged with violet, the third and seventh joints having a pale greenish yellow spot on each side ; the 3 intermediate joints of the same colour interrupted by blackish violet down the centre. Abdominal membrane pale yellow. Antennæ and tarsi testaceous. Wings pale fulvous : costa, 2 cells near the stigma and posterior margin ferruginous.

In the Cabinet of the British Museum.

Dr. Leach has described in the Zoological Miscellany (above referred to) eleven species of this fine Genus, seven of which

are ascertained to be inhabitants of Great Britain; the unique specimen figured, which is a female, was taken in the month of July at Windsor several years since by Mr. Griesbach, and presented to the British Museum by Dr. Leach.

The larvæ of this Genus greatly resemble those of the *Lepidoptera*, except that they have twenty-two feet; they have also two lateral apertures from which they are able to spirt a fluid, for what purpose we can only conjecture, probably it may be sufficiently fetid or noxious to protect them against the attacks of the destructive *Ichneumonidæ*. When the larvæ are full grown, they form for themselves an oblong hard case, which is generally attached to a twig or small branch of the tree they fed upon, within which they change to an incomplete pupa.

The plant figured is *Holcus mollis* (Creeping Soft Grass).



Published by S. Curtis London June 1 1824

TRICHIOSOMA LATERALE.

Order Hymenoptera. Fam. Tenthredinidæ *Lat.*, *Leach.*

Type of the Genus Tenthredo Lucorum *Linn.*

Trichiosoma *Leach.* Cimbex *Oliv.*, *Fab.*, *Lat.* Tenthredo *Linn.*, *Fab.*, *Jur.*

Antennæ inserted between the eyes, clavate, punctured, 7-jointed, first joint nearly globose, very hairy, second transverse, third very long and slender, fourth and fifth clavate, truncate, sixth dilated anteriorly, forming the base of the club which has an elevated transverse suture. (f. 1.)

Labrum quadrate, angulated at the base, rounded before and ciliated, slightly produced in the centre. (2.)

Mandibles exserted, of the male very long, slender, acute, most commonly with two teeth on the internal side. (3.)

Maxillæ with the external lobe corneous, the internal one membranaceous, hairy: *Palpi* irregular, extending a little beyond the maxillæ, composed of six joints nearly equal in length, the fourth being the most dilated, and the terminal most slender. (4.)

Mentum short, oblong, slightly angulated before (5. a.): *Palpi* a little longer than the lip, 4-jointed, first and second joints somewhat long, cylindric, third joint membranaceous, flat, broad, terminal joint slender, cylindric (b.): *Lip* membranaceous, three-lobed, the centre lobe rather the smallest, attenuated towards the base. (c.)

Clypeus *broad, slightly emarginate.* Ocelli 3. Abdomen *sessile, villose, cylindric in the males, somewhat ovate and depressed in the females, first segment, especially of the males, slightly emarginate above.* Oviduct *not exserted, composed of two lamellæ which are serrated.* Superior wings *with 2 marginal and 3 submarginal cells.* Thighs 4 *posterior dentated and incrassated in the males.* Tibiæ *with siphon-formed spurs, obtuse at the apex.* Tarsi 5-*jointed, with the penultimate joint a little shorter than the antepenultimate, four first joints with small membranaceous appendages, dentated beneath, especially the first joint of the males.* Claws *simple* (8 *fore leg of a male*).

Larva *with membranaceous feet.*

Lateraie *Leach Zool. Mis. v. 3. p.* 109. *n.* 2.

Æneous black covered with soft yellowish hairs. Head and antennæ very black; sides and underside of abdomen, tibiæ, tarsi, and costa, yellow inclining to ferruginous. Wings stained with yellow, posterior margin fuscous.

In the Author's and other Cabinets.

The Genus *Trichiosoma* was established by Dr. Leach in his valuable Monograph upon the *Tenthredinidæ:* it is closely

allied to the Genus *Cimbex*; from which, however, it is very distinct in the formation of the organs of manducation, the labrum being very broad, the mandibles are tridentate, and the relative proportions of the joints of the palpi are very different; the most constant character in the antennæ is the great length of the third joint, the tarsi have their joints angulated beneath towards the centre, not spined near the apex as in *Cimbex*, from which the males may be instantly known, by their wanting the membranaceous covering near the base of the abdomen, and the four posterior thighs being furnished with a tooth. The dissections in the plate are all taken from a male, in which sex the *instrumenta cibaria* far exceed those of the female in size, especially the labrum and mandibles.

Trichiosoma laterale is a rare insect, specimens being only occasionally met with in the woods about London: Mr. Samouelle first captured a specimen at Coombe, in the month of April; the one figured (which is a male) came from Darent; and I believe Mr. Stephens has also specimens from the same neighbourhood: the other British species are, *T. sylvaticum* Leach.; *Lucorum* Linn.; *tibiale* Steph.; *Scalesii* Leach., and *unidentatum* Leach.

The larvæ, like those of *Cimbex*, roll themselves up in a peculiar manner, and when full grown inclose themselves in a hard case, which they attach to the plant they fed upon. One species (*T. Lucorum*) is very abundant upon the Whitethorn (Pl. 31.); and in the winter, when the leaves have fallen off, the cocoons are easily collected; and in April following the fly will make its appearance.

Hyacinthus non-scriptus Linn.; *Scilla nutans* Smith (Harebell Squill) is figured with the insect.


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93.

CLAVELLARIA MARGINATA.

Order Hymenoptera. Fam. Tenthredinidæ *Lat.*, *Leach.*

Type of the Genus Tenthredo Amerinæ *Linn.*

Clavellaria *Lamarck, Leach.* Cimbex *Oliv., Fab., Lat.* Tenthredo *Linn., Fab., Jur., Panz.*

Antennæ inserted between the eyes, longer in the male than female, clavate, 5-jointed, 1st joint somewhat globose, with a tuft of long hairs, 2nd transverse hairy, 3rd very long slender, 4th short, 5th forming a club as long as the 3rd joint, covered with minute tuberculated glands (f. 1).

Labrum large, semi-transparent, scarcely hairy, rounded, narrowed at the base (2).

Mandibles exserted, very long in the male, slender, acute, with 2 large and sometimes smaller teeth on the internal edge (3).

Maxillæ hairy, composed of 2 membranaceous lobes, the superior one somewhat trigonate, the internal one more lanceolate. *Palpi* considerably longer than the maxillæ, composed of 6 joints of nearly equal length, 3 first joints robust, 2 following somewhat hatchet-shaped, terminal joint clavate (4).

Mentum pilose, oblong, slightly dilated before (5 a). *Palpi* a little longer than the lip, 4-jointed, 3 first joints of equal length, the 3rd rather more robust, terminal joint the longest, cylindric, not more slender than the others (b). *Lip* membranaceous, 3-lobed, the centre one linear, the others considerably longer, narrow, attenuated towards the base (c).

Clypeus *broad, emarginate, membranaceous* (1 *a, front view of head of male*). Ocelli 3. Abdomen *sessile, villose, linear in the males, somewhat dilated in the females, 1st segment scarcely emarginate above.* Oviduct *not exserted, composed of 2 lamellæ that are serrated.* Superior wings *with 2 marginal and 3 submarginal cells.* Thighs *unarmed, 4 posterior incrassated in the males.* Tibiæ *with siphon-formed spurs, obtuse at the apex.* Tarsi 5-*jointed, with the penultimate joint a little shorter than the antepenultimate, 4 first joints with small membranaceous appendages slightly angulated beneath.* Claws *simple* (8 *a fore leg*). Larvæ *with membranaceous feet.*

Marginata *Linn. Syst. Nat.* 2. 929. 2. *Fab. Ent. Syst. t.* 2. *p.* 106. *n.* 6.

Fem: black. Head and thorax pubescent. Clypeus pale yellow. Club of the antennæ except at the base ferruginous. Thorax and basal joint of abdomen green inclining to purple. Basal joint of abdomen edged with yellow, the remaining joints except the 2nd and 3rd margined with ochraceous, the band on the 4th joint being interrupted in the middle. Tibiæ and tarsi pale ferruginous. Wings stained yellowish, the costal and one of the discoidal cells being most intense, nerves and stigma ferruginous; posterior margins tinged pale brown.

In the Cabinets of the British Museum and Mr. Stephens.

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Except in the cabinets above recorded, I know of no British specimens of this valuable genus, of which Dr. Leach in the Zoological Miscellany mentions 2 species that were first described by Linnæus; and from our finding males only of the one and females of the other, it is exceedingly probable they are the same species, notwithstanding their dissimilarity, which would render the specific name of "*dispar*" more appropriate; the fact, however, of their being the same is not proved; and if it should hereafter, I would strongly recommend that the name which Linnæus gave to the male might be adopted, "*Amerinæ*" being descriptive of the locality of the insect; for we are informed by authors that it inhabits sallows, living in society, and eating the edges of the leaves of those trees.

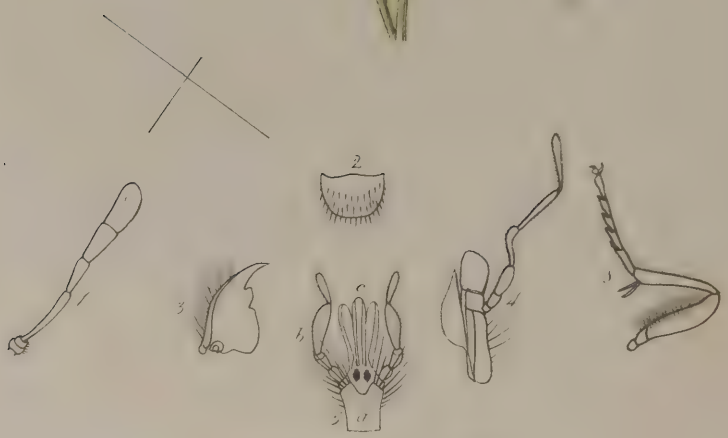
Clavellaria Amerinæ Linn. has been twice taken at Windsor in June: a figure of it will be found in Panzer's *Faunæ Germanicæ*, **fasc. 65, pl. 1. mas.**

C. marginata Linn. is also figured by Panzer: the specimen represented in our plate was taken at Windsor also in June, **by Mr. Griesbach.**

The absence of the membranaceous covering as well as the slight emargination at the base of the abdomen, and the antennæ being composed of fewer joints and a longer club, are characters to distinguish *Clavellaria* from *Cimbex* and the neighbouring genera, no less than the organs of manducation; and the extraordinary length of the jaws in the males is not less characteristic. If then there be good characters to establish so many genera, (and that there are, no one can doubt, when it is recollected that Dr. Leach in the division of *Cimbex* employed only external distinctions,) the group with clavate antennæ, viz. the *Cimbices*, will form an excellent family; and the œconomy of the *Tenthredinidæ*, as well as their peculiar structure, may render it advisable in a more advanced stage of science to separate them from the *Hymenoptera* and form them into a new order, an idea which has long been entertained by various authors.

Pyrola media (Intermediate Winter-Green), from the heaths in the north of Perthshire, appears to be the plant figured.




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97.

(ZARÆA) FASCIATA.

ORDER Hymenoptera. FAM. Tenthredinidæ *Lat.*, *Leach.*

Type of the Genus Tenthredo fasciata *Linn.*

ZARÆA *Leach.* Cimbex *Fab.*, *Oliv.*, *Lat.* Tenthredo *Linn.*, *Jur.*, *Panz.* *Antennæ* inserted near the interior margin of the eyes, short clavate, slightly pubescent, 6-jointed, 1st and 2nd joints transverse, slightly hairy, 3rd long, slender, bent, clavate, the remainder of nearly equal length, 5th and 6th forming the club, the latter somewhat ovate (fig. 1).

Labrum exserted, semicircular, covered above with rigid hairs (2). *Mandibles* small, bent, very acute, with an obtuse tooth on the internal edge, very hairy externally (3).

Maxillæ long, lobes membranaceous, terminal one naked, rounded, the other large, attenuated, acute. *Palpi* long, hairy, 6-jointed, coriaceous at the base, terminal joints membranaceous, two 1st joints small, 3rd robust, 4th long, bent, or twisted, 5th very long, 6th nearly as long (4).

Mentum somewhat quadrate, deeply emarginate, hairy (5 a). *Palpi* hairy, 4-jointed, 2 basal joints short, 3rd and 4th membranaceous compressed, dilated, the former very large (b). *Lip* composed of 3 nearly equal hollow lobes (c).

Head *small.* Eyes *of the males contingent behind.* Ocelli 3, *placed before the eyes, especially in the males.* Abdomen *sessile, cylindric, ovate in the females.* Oviduct *not exserted, composed of 2 lamellæ which are serrated.* Superior wings *with 2 marginal and 3 submarginal cells.* Legs *slender.* Tibiæ *with obtuse siphon-formed spurs.* Tarsi *with the joints gradually decreasing in length to the last, 5-jointed, 4 first joints with membranaceous appendages.* Claws *simple.* Pulvilli *distinct* (8 *a fore leg*).

Larvæ *with membranaceous feet.*

FASCIATA *Linn. Faun. Suec.* 1538. *Fab. Ent. Syst. t. 2. p. 107. n. 9.*

Female æneous-black, shining, pubescent, minutely punctured. Antennæ dull black: 1st joint of abdomen semitransparent, whitish with an interrupted black line at the base. Wings iridescent, tinged with fuscous towards their extremities, the superior with a large brown spot in the centre. Tibiæ brown, tarsi dull ochraceous. Abdomen beneath whitish in the middle, at the base. "*Male* bronzed, the 1st segment of the abdomen not white as in the female." *Jurine.*

In the Cabinet of Mr. Stephens.

Although the more rounded labrum and acute mandibles, as well as the form of the 4th joint of the maxillary palpi and the great breadth of the 3rd joint of the labial palpi, are important differences to distinguish our genus from *Abia;* a more obvious character is to be found in the antennæ, each of which is composed of 6 joints only, the club being formed by 2 instead of 3 articulations.

At present there is no other species of this genus described: the one figured is rare in this country, and I have had no opportunity of examining a male. The females have been taken by J. F. Stephens, Esq. in Coombe Wood in May; from which we may infer that the males are more scarce (an opinion that is corroborated by the females being constantly figured, and the specimens I have received from Germany for dissection being all of that sex), a circumstance that is somewhat singular, because in *Abia*, to which it is so closely allied, the males are by far the more common sex.

The plant figured is *Adoxa Moschatellina* (Tuberous Moschatel).


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89.

ABIA NIGRICORNIS.

Order Hymenoptera. Fam. Tenthredinidæ *Lat.*, *Leach.*

Type of the Genus Tenthredo sericea *Linn.*

Abia *Leach.* Cimbex *Fab., Oliv., Lat.* Tenthredo *Linn., Jur., Panz.*
Antennæ inserted near the interior margin of the eyes, short clavate, 7-jointed, 1st and 2nd joints transverse, hairy, 3rd very long bent, claváte, 4th and 5th more robust clavate-truncate, 6th short robust, 7th short rounded (fig. 1).
Labrum transverse, rounded, very pilose (2).
Mandibles small, bent, somewhat acute, with a strong tooth on the internal edge, very hairy externally (3).
Maxillæ small, internal lobe acute, external ovate ciliated. *Palpi* long coriaceous at the base, membranaceous towards the apex, slightly hairy, 1st and 2nd joints very short, 3rd and 4th of equal length, robust, 5th and 6th longer and more slender (4).
Mentum somewhat quadrate, deeply emarginate (5 a). *Palpi* 4-jointed, 2 first joints coriaceous, the others membranaceous (b). *Lip* composed of 3 equal lobes, margined (c).
Head *rather small.* Eyes *of the males approximating behind.* Ocelli 3, *placed before the eyes, especially in the males.* Abdomen *sessile, villose, cylindric, broader in the females, the males having a quadrate silky spot beyond the middle.* Oviduct *not exserted, composed of* 2 *lamellæ which are serrated.* Superior wings *with* 2 *marginal and* 3 *submarginal cells.* Legs *slender.* Tibiæ *with obtuse syphon-formed spurs.* Tarsi *with the joints gradually decreasing in length to the last,* 5*-jointed,* 4 *first joints with membranaceous appendages.* Claws *bifid.* Pulvilli *distinct* (8 *a fore leg*).
Larvæ *with membranaceous feet.*

Nigricornis *Leach, Zool. Mis. v.* 3. *p.* 113. *n.* 1.—nitens *Linn. Faun. Suec.* 1539.—sericea *var. Fab. Syst. Piez. p.* 18. *n.* 10.
Male: Antennæ black. Eyes dull cinereous. Head and thorax greenish-black. Abdomen dull, brassy green, minutely punctured and covered with short pubescence, a large quadrangular blackish spot upon the centre of the 4th, 5th, and 6th segments. Wings iridescent at their margins, stained yellow: superior variegated with brown in the centre and at the apex, nerves pale towards the base, dark at their extremities. Legs pale ochraceous, thighs æneous-black, except at the apex. *Female:* Antennæ with the club brown. Abdomen dull aureous green, without any spot.

In the Author's and other Cabinets.

Abia was separated from the *Cimbices* by Dr. Leach, and is easily distinguished from his genus *Zaræa*, which it most resembles, by the three last joints of the antennæ forming a club, whereas in *Zaræa* it is composed of only 2; and the singular quadrate spot upon the abdomens of the males at once distinguishes that sex from the whole family.

Abia nigricornis appears to have been considered by Linnæus as the female of *Tenthredo nitens*, and by Fabricius as a variety of *Cimbex sericea*. Amongst other distinctions, however, the colour of the antennæ, the brown markings of the wings, and the situation and form of the spot upon the abdomen of the males are sufficient, now that the sexes of both have been taken, to justify its being recorded as a distinct species. It was, I believe, never before figured. It has been taken at Coombe Wood, by J. F. Stephens, Esq., in the month of June. *A sericea*, the other species inhabiting this kingdom, has been found on heaths upon Furze-bushes, in June, and sometimes occurs in considerable abundance: it is figured by Donovan in his *Brit. Ins. v.* 12. *pl.* 402.

The plant represented is *Genista anglica* (Needle Furze, or Petty Whin).


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LOPHYRUS PINI.

Order Hymenoptera. Fam. Tenthredinidæ *Lat.*, *Leach.*

Type of the Genus Tenthredo Pini *Linn.*

Lophyrus *Lat., Leach.* Tenthredo *Linn., Fab.* Hylotoma *Fab.* Pteronus *Jur.*

Antennæ inserted near the middle of the face, somewhat approximating, not longer than the thorax, pubescent; male with about 22 joints, all of which are bipectinated, except the first 2 and terminal joints (f. 1.); female thickest in the middle, slightly serrated internally, having from 16 to 18 joints (1. a.) *Labrum* nearly quadrate narrowed anteriorly, ciliated. (2.) *Mandibles*, one tridentate (3.), the other with a small tooth only. *Maxillæ* with 2 long lobes, the interior one somewhat acuminate, membranaceous, as long as the external one, which is rounded and hairy: *Palpi* long slightly hairy 6-jointed, 1st and 2nd joints short, the following long, the 2 last being more slender. (4.) *Mentum* quadrate, slightly dilated anteriorly (5. a.): *Palpi* hairy, 4-jointed, of nearly equal length, gradually increasing in breadth to the last which is somewhat ovate acuminate (b.): *Lip* tripartite, the lobes of nearly equal size. (c.)

Head *in the males very broad.* Ocelli *nearly in a transverse line.* Thorax *in the males large.* Abdomen *sessile, somewhat cylindric in the males, depressed and ovate in the females.* Oviduct *not exserted, composed of 2 lamellæ which are serrated.* Superior wings *with 1 marginal and 4 sub-marginal cells, the nerve dividing the 1st and 2nd cells being imperfect.* Tibiæ *with spurs.* Tarsi 5-*jointed, first 4 joints with membranaceous appendages, 1st joint very robust, the following gradually decreasing in size to the apex, which is terminated by claws slightly unidentate* (8. *a fore leg.*)

Larva *with 6 pectoral and 16 membranaceous feet.*

Pini *mas. Linn. Syst. Nat.* 2. 922. 14.—*Fab. Ent. Syst. v.* 2. *p.* 112. *n.* 28.—*fem.* T. dorsata *Fab. v.* 2. *p.* 111. *n.* 26.

Male black, head and thorax minutely punctured. Palpi, tibiæ and tarsi pale ochraceous. Stigma large, furruginous. Wings slightly discoloured with fuscous. Antennæ with 22 joints. *Female* larger than the male, pale ochraceous. Head, antennæ (excepting the 1st joint) a spot before the centre and a lunulated mark on each side the thorax black, margin to 1st segment 4th and 3 following segments, excepting the sides, a mark on the centre of the 8th and the apex of the abdomen also black. Legs pale varied with fuscous. Wings pale ochraceous, stigma large ferruginous. Antennæ with 18 joints: Some specimens have more and others less black.

In the Cabinet of the British Museum.

We have only three British species of this pretty genus of Latreille's, which rival even the Lepidoptera in the beauty of their antennæ; and nature, guided by the same principle, has bestowed this ornament alike in both orders upon the males, which still further involves in mystery their use and quality; since if form were material, the power of one sex would either be very different or very superior to that of the other;—if the sense of feeling indeed be the only faculty they possess, their form is not of so much importance; and like Lehmann we shall be inclined to adopt this opinion, if we consider their general situation, their porrected attitude when in action, and still more the uses to which they are applied.

Lophyrus Pini is a rare insect in Britain: the female has been taken in Derbyshire, but the pine forests of Scotland are the most productive places for them: *L. pallidus* of Leach was found in the larva state by that gentleman at Oban in Scotland, upon *Pinus sylvestris*. (Pl. 7.) On the 6th of September they spun cocoons, on the 14th of June following one female hatched. *L. rufus* Klug. is not uncommon in the same country, and is also occasionally met with at Birchwood. June appears to be the month in which all the species are found in the imago state, and the males are by far the rarest; that of *L. pallidus* is unknown, and I have seen but one British male of *L. Pini*.

De Geer devotes the whole of tab. 36. vol. 2. to the illustration of *L. Pini*; and his history of it at p. 971 is not less interesting. The larvæ (says that author) are gregarious, of an obscure ochre colour with a row of large black spots down the side, when full-grown with another row down the back: they assemble in July upon the branches of the pine in large troops of more than a hundred; they commonly repose along the leaves, having their heads inclined on one side; they are very voracious, not only devouring the straight leaves of the pine, beginning at the end as one eats a radish, but also the bark of the young shoots; and after having despoiled one branch of its leaves, they go in a body and fix upon another, until so many branches are stripped that their habitation becomes conspicuous. When touched they raise their heads and let flow from their mouths a drop of clear resin, which has the scent and consistence of that exuding from a wounded branch of the pine. In every state the sexes may be known by their size; even the cocoons which are fixed to the branches of the pine are much smaller in the males than the females; the larvæ form cocoons about September, but they do not change to pupæ until the spring; and one of Dr. Leach's caterpillars of *L. pallidus* remained two years in that state without nourishment, which could not happen if they were not perfectly secluded from the air: the males bred by De Geer appeared in May,—the females did not hatch till June.

Lychnis dioica mas. var. *alba* (White Campion) is figured.


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58.

CRYPTUS PALLIPES.

Order Hymenoptera. Fam. Tenthredinidæ *Lat.*, *Leach.*

Type of the Genus Tenthredo furcata *Vill.*, *Fab.*

Cryptus *Jurine, Leach.* Tenthredo *Fab., Coqueb.* Hylotoma *Fab., Lat.*

Antennæ inserted between the eyes, pubescent, 3-jointed; 1st joint (in the male) cup-shaped, 2nd short, 3rd very long furcate, with numerous whorls of long bristly hairs round each branch (fig. 1.); 3rd joint (in the female) simple, filiform, without bristles (1. a.)

Labrum transverse, emarginate and ciliated anteriorly (2.)

Mandibles arcuated, acute, with a tooth about the middle of the internal edge, more evident in one mandible than the other (3.)

Maxillæ short, external lobe large, rounded, internal lobe small linear: *Palpi* long, hairy, 6 jointed, 1st joint small, 4 following of nearly equal length, the 4th joint being the broadest, terminal joint rather long and slender (4.)

Mentum elongated, narrowed before (5.): *Palpi* short, slightly hairy, 4-jointed, 3 first joints short, the 3rd being the broadest, 4th long, slender (b.): *Lip* tripartite of equal portions (c.)

Head *with a tubercle in front above the eyes.* Ocelli 3. Abdomen *sessile somewhat short.* Oviduct *not exserted composed of* 2 *serrated lamellæ.* Superior wings *with* 1 *marginal cell and four imperfect submarginal cells.* Tibiæ *simple, with spurs at the extremities.* Tarsi 5*-jointed,* 4 *first joints with appendages beneath, the* 1*st joint longest the* 4*th shortest.* Claws *simple, with pulvilli* (8 *a fore leg.*)

Larvæ *with* 6 *pectoral and* 12 *or* 14 *membranaceous feet.*

Pallipes *Leach Zool. Mis. v.* 3. *p.* 125. *n.* 3.

Black shining. Head thorax and scutellum minutely punctured, thickly covered with very short yellow hairs invisible to the naked eye. Abdomen perfectly smooth, slightly æneous with a shade of piceous, pubescent. Tibiæ and tarsi very dull and pale brown. Wings very iridescent with a brownish yellow tinge, especially beneath the stigma which is brown as well as the nerves.

In the Cabinets of the British Museum and Mr. Stephens.

Fabricius having established the genus *Hylotoma*, in which he united several very excellent genera, Latreille afterwards separated them, and retained under that name the insects which compose Jurine's genus *Cryptus:* Dr. Leach has again divided

the group, extracting the species with furcate antennæ, for which he has retained Jurine's name *Cryptus*, leaving the remainder of the group under *Hylotoma*, following Latreille; and it is only to be regretted that he did not give another name to the genus, and thereby avoid the confusion which Jurine has introduced by employing the name *Cryptus* here, when Fabricius had 3 years before given that name to a genus of *Ichneumonidæ*, which Jurine was aware of, from his referring one of his divisions in that family to Fabricius's genus in a subsequent page; and had not Panzer published those *Ichneumonidæ* under the name of *Alomya*, by which they are now well known, it would still be necessary to substitute a new name, in which we should only be doing justice to Fabricius.

The male of *Cryptus pallipes* (a figure of which has never before appeared in any work) was first taken at Coombe Wood, by Mr. J. King; and was named and described by Dr. Leach, and deposited in the British Museum. J. F. Stephens, Esq. was afterwards so fortunate as to meet with both sexes of this extremely rare species in June, at the same place: the other species (*Tenthredo furcata* Vill., *C. Villersii* Leach) has been taken at Bristol in June; it is figured by Panzer in his *Faunæ Insectorum Germanicæ*, fasc. 46. tab. 1.; and by Coquebert in his *Illustratio Iconographica Insectorum*, tab. 3. fig. 4. *mas.* I have retained Villers's name, although it is objectionable, from its being a generic rather than a specific one, and descriptive of the male only; because as the greater proportion of insects have been named from one sex, we shall never have our nomenclature settled, if it is to be disturbed upon such occasions.

Triglochin maritimum (Sea Arrow-grass) is figured in the plate.


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65.

HYLOTOMA STEPHENSII.

Order Hymenoptera. Fam. Tenthredinidæ *Lat.*, *Leach.*

Type of the Genus Tenthredo cœrulescens *Fab.*

Hylotoma *Fab., Lat., Leach.* Tenthredo *Linn.* Cryptus *Jur.*

Antennæ inserted near the centre of the face, divaricating, curved, 3-jointed, 2 first joints small, 3rd very long, filiform, and pilose in the males, the hairs arising at right angles on one side (f. 1): not so long in the females, somewhat clavate, and scarcely hairy (1 a).

Labrum exserted, transverse, hairy, sides convex, anterior margin nearly straight (2).

Mandibles somewhat robust, arcuate, with an obtuse tooth near the middle of the internal edge, less evident in one than in the other mandible, ciliated externally (3).

Maxillæ small, internal lobe nearly obsolete, external oval, hairy: *Palpi* hairy, 6-jointed, 2 first joints small, 3 following of nearly equal length, the 1st being the most robust, terminal joint slender and the longest (4).

Mentum (5 a) somewhat quadrate, dilated into angles on each side where the *Palpi* arise, which are 4-jointed, 1st joint small, 2nd and 3rd of nearly equal size, 4th slender, elongate, conic (b): *Lip* tripartite, of nearly equal portions (c).

Head *with a tubercle between the antennæ.* Ocelli 3. Abdomen *sessile, rather short and thick.* Oviduct *not exserted, composed of 2 serrated lamellæ.* Superior wings *with one marginal cell, emitting a nerve from the apex, and 4 perfect submarginal cells.* Tibiæ *simple, the 4 posterior, having a spine on the internal side, below the middle* (8 *a hind leg*).

Stephensii *Leach Zool. Mis. v. 3. p. 123. n. 6.*

Head and thorax violaceous-black, the latter inclining to rufous in parts. Abdomen yellowish-ochraceous, palest at the base, pectus ferruginous, violaceous-black in the middle. Wings iridescent, stained pale yellowish fuscous; costa, stigma, and nerves piceous. Legs brown, pubescent; 4 posterior thighs yellow, except at their apex. Tarsi and antennæ nearly black.

In the Cabinets of Mr. Stephens and the Author.

The division of Fabricius's genus *Hylotoma* has been already explained in the account of *Cryptus* (fol. 58): it is therefore only necessary here to observe, that, independent of the difference of the instrumenta cibaria, there are external characters that fully justified Dr. Leach's separating that genus from *Hylotoma;* the simple antennæ in both sexes in *Hylotoma*, the branch from the marginal cell of the wings, and the spines of the 4 posterior tibiæ, are the most remarkable. The genus as it now stands contains 14 British species, which I shall here enumerate, observing that the first may possibly belong to Le Peletier de Saint-Fargeau's genus *Ptilia.*

HYLOTOMA

1. pilicornis *Leach.*
2. Berberidis *Klug.*
3. Anglica *Leach.*
4. enodis *Linn.*
5. violacea *Klug.*
6. cœrulea *Klug.*
7. ustulata *Linn.*
8. Klugii *Leach.*
9. segmentaria *Panz.*
10. cœrulescens *Fab.*
11. femoralis *Klug.*
12. Rosæ *Linn.*
13. Stephensii *Leach.*
14. pagana *Panz.*

Our species (of which a female is figured) was first discovered at Darent Wood, Kent, by J. F. Stephens, Esq., in honour of whom it was named by Dr. Leach. It is nearly allied to *H. pagana*, from which it differs in having more transparent wings, brown and pubescent tibiæ, and black tarsi: it appears to be a local species, as I have never met with it myself, excepting at Darent, where it is taken in June, in which month all the species above recorded are to be found.

Stachys sylvatica (Hedge Wound-wort), referred to in folio 61, is figured with the insect.


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617.

ATHALIA SPINARUM.

The Turnep Saw-fly.

ORDER Hymenoptera. FAM. Tenthredinidæ.

Type of the Genus, Tenthredo spinarum *Fab.*

ATHALIA *Lea., St. Farg., Curt.*—Hylotoma *Fab.*—Allantus *Jur., Klug.*—Tenthredo *Linn., Fab., Panz.*

Antennæ inserted near the middle of the face, short and clavate, stoutest in the female; 10-jointed, basal joint chalice-shaped, 2nd shorter obovate, 3rd long, slightly clavate, 4th not longer than the 1st, the following decreasing in length, terminal joint the stoutest, ovate, never so long as the 3rd (1).

Labrum subquadrate, the anterior margin being considerably produced in a bow, forming rounded angles on each side; ciliated and pilose (2).

Mandibles, one rather smaller than the other in the female, the apex forming a curved claw, with a small tooth inside in one (3), merely notched in the other, hairy outside.

Maxillæ elongated, terminated by a somewhat ovate leathery lobe, with a long lanceolate internal one very pubescent on the inside. *Palpi* long pubescent and 6-jointed, basal joint the shortest, the remainder nearly of equal length and clavate, 3rd less attenuated at the base, 6th the slenderest, slightly fusiform (4).

Mentum elongate obovate. *Palpi* short, attached to the anterior angles, 4-jointed, pilose towards the apex, joints nearly equal, 1st clavate-truncate, 2nd more ovate, 3rd obovate, 4th a little the longest, ovate-conic, the apex excavated on the inside. *Lip* large suborbicular, trilobed, centre lobe narrow (5).

Head *transverse:* eyes *oval:* ocelli 3 *in triangle.* Thorax *globose.* Abdomen *short subcylindric.* Wings, superior *with* 2 *marginal and* 4 *submarginal cells.* Legs *rather short:* tibiæ *clavate, all having a pair of acute unequal spurs at the apex:* tarsi *rather long and* 5-*jointed, the* 4 *first having appendages at the apex beneath:* claws *and* pulvilli *small* (8 † *hind leg*).

Larvæ *with* 6 *pectoral,* 14 *abdominal and* 2 *anal feet.*

SPINARUM *Fab.—Curt. Guide, Gen.* 464. 2.—Centifoliæ *Panz.* 49. 18.

Bright orange; antennæ and head black, underside of the former, excepting the base and apex, dull yellow: labrum and palpi yellow: thorax black above, with the collar and a conical space before, the scutel, and a spot on the postscutel reddish-orange: wings and nervures yellowish at the base, costa and stigma dark brown; tarsi whitish, tips of tibiæ and of all the tarsal joints black, the apical one entirely black, as well as the claws and the tip of the ovipositor. In the *male* the 2 basal joints of the antennæ are yellow beneath, and more or less so above.

In the Author's and other Cabinets.

Athalia nearly resembles Hylotoma and Selandria, but is distinguished from both by its antennæ, which are more clavate than the latter and have more joints than the former. Dr. Leach described them as 10-jointed, but in the species figured the males have only 9 joints (fig. 1.), and in the females an 11th joint is indicated. Six species are recorded in the Guide as British, and the one before us is well deserving our attention from the injurious habits of its larva.

The *T. spinarum* is stated by Fabricius to be destructive to turneps, and the *T. centifoliæ* of Panzer is undoubtedly the same species.

In walking through the turnep-fields last year the most casual observer must have noticed the mere skeletons which the leaves often exhibited, the fibres only remaining, the membrane being consumed by larvæ called Blacks by the farmers. From the middle of August to the 20th of October, at which time they were full-grown, I observed them feeding on the leaves of the turneps; they often varied considerably in stature, and the bulb was evidently reduced in size through their agency. The larvæ or caterpillars when full-grown are sometimes green, but generally of a lead or slate colour, being black before changing their skins, and always appearing darker when rolled up: they form an oval horny cocoon either amongst the leaves on the ground or under the clods of earth, where they become pupæ. The fly appears principally in August and September, but I have found them as early as the 29th of March, and as late as the middle of October. I first observed these flies in abundance in a potato-field at Battersea, and afterwards in a field near Heron Court; but last year they were distributed over the whole country, after an absence in many places, I was informed, of upwards of 30 years; they have appeared again this year, and Mr. R. Taylor and myself, in a botanical excursion last August, saw the flies coming out of the ground in myriads in a ploughed field near Bristol, where potatos had apparently been grown.

The *flies* do not appear to be attached to any particular plant; whether the *larvæ* will attack any other than the English turnep I cannot determine, but it is a remarkable fact that they will not touch the Swedes. I believe it is not difficult to destroy them, for if they are brushed off the leaves it seems they are unable to crawl upon the ground and recover their station; they consequently perish unless they are full-grown at the time: but as there is a constant succession from August till near November, the operation of drawing a hurdle or something over the turneps ought to be repeated at intervals during that period. Wet, also, is said to destroy the blacks, and ducks turned into the fields clear them off rapidly and grow fat upon them.

The full-grown larva is represented feeding upon the turnep, *Brassica Rapa*.


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764.
ALLANTUS FLAVIPES.

ORDER Hymenoptera. FAM. Tenthredinidæ.

Type of the Genus, Tenthredo Scrophulariæ *Linn.*

ALLANTUS *Jur., Panz., Curt.*—Tenthredo *Linn., Fab., Klug., St. Farg.* *Antennæ* frequently shortest in the males, inserted in the middle of the face, approximating, as long as the thorax, clavate, compressed, 9-jointed (1); basal joint short stout subpyriform, 2nd small, obovate, 3rd the longest, clavate, 4th and 5th stouter but much shorter, the following diminishing to the apical joint, which is small and conical.

Labrum suborbicular, angulated in the centre and ciliated (2). *Mandibles* very similar, curved, the apex forming a strong claw with 3 or 4 stout teeth below, externally pilose (3).

Maxillæ long and slender terminated by an ovate lobe, and an internal pubescent one. *Palpi* long slender pubescent and 6-jointed, basal joint short, 2nd and 3rd longish and stout, 4th a little longer, rather slender and clavate, 5th not longer than the 3rd, 6th shorter, the slenderest, apex conical (4).

Mentum short, corset-shaped. *Palpi* attached to the anterior angles, short stout pubescent and 4-jointed, basal joint sub-pyriform, the remainder nearly of equal length, terminal joint ovate-conic. *Lip* broad and trilobed, central lobe oblong, lateral lobes more obovate (5).

Males *not always the smallest.* Head *transverse-oblong, base concave:* face *trigonate:* eyes *vertical, prominent, and oval:* ocelli *forming a compact triangle on the crown.* Thorax *globose:* scutel *broad and semiovate.* Abdomen *generally cylindric, a little depressed and linear in the males, the apex rounded, sometimes rather broad in the females, the apex conical:* ovipositor *not projecting.* Wings, superior *with 2 marginal and 4 submarginal cells.* Legs, *hinder long, stoutest in the males:* thighs, *anterior the shortest:* tibiæ *all spurred, anterior with the apex of one spur furcate:* tarsi 5-*jointed, first 4 joints lobed beneath, and stouter than the others in the hinder pair of the males* (8†): claws *bifid:* pulvilli *distinct.*

Larvæ *with 6 pectoral, 14 abdominal and 2 anal feet.*

FLAVIPES *Fourc.*—*Curt. Guide, Gen.* 466.

Male black, head and thorax mealy; clypeus labrum and 2 basal joints of antennæ yellow, 2nd black inside; sides of collar scapulars and 2 dots on postscutel yellow; margin of 3rd segment and 2 following ferruginous, with a black streak at the base of each, remainder yellow, base of 6th with a broad black band, narrow on the 7th, wings ferruginous-yellow, costa and stigma ochreous; legs yellow, intermediate thighs with a small, hinder with a large black patch on the inside; 4 anterior tibiæ with a black patch at the apex; tarsi black, gray at the base, hinder with the 3 basal joints yellow. *Female* with 2 basal joints of antennæ yellow: abdomen with the margins of the segments yellow, interrupted on the 2nd, 3rd and 4th, forming sublunate spots on the sides (A): wings yellow, costa stigma and nerves orange; hinder thighs with a black patch at the base.

In the Cabinets of Mr. Shuckard and the Author.

IF we take the typical species of Allantus and compare them with those of Tenthredo, pl. 692, the differences are very

evident, especially in the antennæ; but if we proceed in the comparison we shall find that they gradually approach, so that at last there is little to distinguish the genera excepting the length of the 3rd joint of the antennæ. I cannot speak with certainty regarding the trophi, not having examined them sufficiently, but I must not omit to notice a remarkable departure from the typical structure, which Mr. Haliday has pointed out to me in a species allied to Selandria, with very short palpi, containing only 5 and 3 joints instead of 6 and 4. Mr. Haliday has only seen the males which he took at Holywood, and has named them *seminigra*, and perhaps Brachythops may be considered an appropriate generic name.

In addition to the 42 species of Allantus recorded in the Guide, I am now able to add three more. The following sections may probably be found preferable to Dr. Klug's, which are based on the colour of the antennæ.

* *Antennæ short, subclavate. a. Hinder tarsi stout in the males.*

1. Scrophulariæ *Linn.—Panz.* 100. 10.—rusticus *Schr.*
2. captiva *St. Farg.* 88. 256. First detected by Mr. Shuckard.
3. Thompsoni *Curt. MSS.*

Male black; clypeus, base of antennæ, humeral spots, 2 on scutel, margins of 1st and 4th, sides of 5th and apical segments yellow: legs yellow, upper side of thighs, apex of tibiæ and tarsi black, hinder dilated.

I have the pleasure of dedicating this pretty species to my friend C. J. Thomson, Esq., who was present when I took it at Mickleham the middle of August.

4. flavipes *Fourc.—Curt. Brit. Ent. pl.* 764. ♂.—dispar *Klug.*

This species was first observed by Mr. Shuckard in Battersea fields, where it appeared in abundance the end of June. Wishing to see the insect alive, I went to the spot the beginning of July, when I found 2 females upon the flowers of *Sinapis nigra* and also 6 larvæ, one of which I have figured: they were feeding on that plant, and I believe upon *S. alba*, pl. 546; they ate the leaves, stalks and flowers; one soon changed its skin, when it lost all the black spots except those on the head, and it buried itself on the 17th, and the others successively, but unfortunately I could not rear them: there is little doubt however that they were the larvæ of *A. flavipes.*

Dr. Klug having described 2 species of Allantus under the name of *dispar*, I have found it necessary to revert to Fourcroy's name, although it is not perhaps so appropriate.

b. Hinder tarsi alike in both sexes.

5. rusticus *Linn.*—carbonaria *Fab.—Panz.* 71. 10.—notata *Panz.* 64. 10. ♀.

** *Antennæ longish, filiform: a. hinder tarsi stout in the males.*

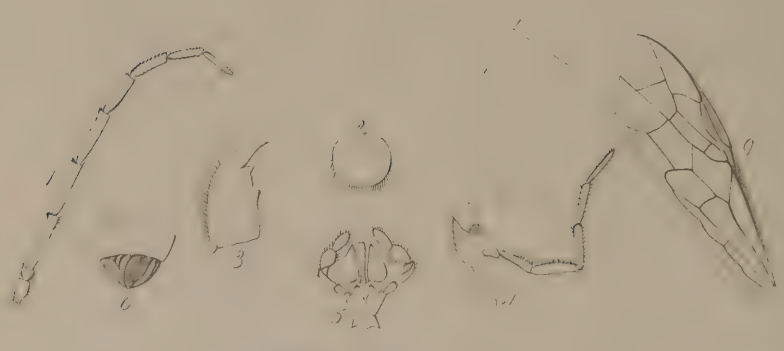
6. zonatus *Panz.* 64. 9.—equestris *Panz.* 107. 6.—succincta *Don.* 13. 441. 2.

b. Hinder tarsi slender in both sexes.

7. lividus *Linn.—Panz.* 52. 6. ♀.—Carpini *Panz.* 71. 9. ♂.

The plant is *Sinapis nigra*, Common Mustard.





692.

TENTHREDO CINGULATA.

ORDER Hymenoptera. FAM. Tenthredinidæ.

Type of the Genus, Tenthredo dimidiata *Fab.*

TENTHREDO *Linn., Curt.*—Hylotoma *Fab.*—Allantus *Jur.*

Antennæ stoutest in the male, inserted near the middle of the face, approximating, shorter than the body, compressed, slightly pubescent and 9-jointed (1); basal joint the stoutest and obovate, 2nd the smallest, cup-shaped, 3rd as long as the 4th, the remainder decreasing in length, the apical joint short and elliptical in the male.

Labrum inserted under the clypeus, orbicular, slightly truncated at the base, the margin ciliated with longish hairs (2).

Mandibles very similar, elongate, linear, convex and hairy externally, the apex forming a large claw, with a small tooth below and a tubercle at the middle (3).

Maxillæ slender, terminated by an ovate lobe, with an internal one equally large, and very pubescent, the apex acuminated. *Palpi* long pubescent and 6-jointed, basal joint short, 2nd and 3rd the stoutest, the former scarcely so long as the 3rd or 4th; 5th and 6th a little shorter, the last slightly clavate (4).

Mentum corset-shaped. *Palpi* attached to the anterior angles, rather long, hairy and 4-jointed, basal joint obovate, 2nd twice as long, curved and ciliated before, 3rd and 4th much broader, especially the former which is ovate, the latter ovate-conic. *Lip* rather large and cordate, composed of 3 lobes, the outer ones ovate-trigonate, the central one narrow, dilated at the apex (5).

Males *generally smaller than the females.* Head *transverse, base concave; face trigonate:* eyes *lateral prominent and ovate:* ocelli *large,* 3 *in triangle on the crown.* Thorax *not large, subglobose:* scutel *rather large and semiovate.* Abdomen *linear and depressed in the males, rather large and convex in the females, the apex conical:* ovipositor *with the apex projecting.* Wings, *superior with* 2 *marginal and* 4 *submarginal cells.* Legs, *anterior the shortest, hinder the longest:* coxæ, *hinder large:* thighs *short, hinder the stoutest:* tibiæ *all armed at the apex with a pair of spurs:* tarsi 5-*jointed, first* 4 *joints lobed beneath:* claws *bifid:* pulvilli *distinct.*

Larvæ *with* 6 *pectoral,* 14 *abdominal and* 2 *anal feet.*

CINGULATA *Fab.—Curt. Guide, Gen.* 467. 2.

Male black: abdomen and legs bright ochre, excepting the back of the 2 basal segments and the coxa and trochanters: head and scutel strongly punctured: wings yellowish fuscous, scapulars and costa ochreous, nervures and stigma brown, the latter with an ochreous margin. *Female* with 2 basal joints of antennæ bright ochre: abdomen brown, margins of segments ochreous, excepting the basal one; in other respects it is like the male.

In the Author's Cabinet.

The differences between Tenthredo and Allantus are very slight; the 3rd joint of the antennæ is evidently longer than the 4th in the latter genus, which seems to be the essential character. Tenthredo comprises 23 British species, of which I shall notice a few in my own cabinet.

2. cingulata *Fab.—Curt. Brit. Ent. pl.* 692.

The remarkable insect figured is a hermaphrodite, the right-hand half being feminine, that on the left masculine, so that in the specimen the antennæ, abdomen, legs, and wings are not symmetrical: the sexual organs are represented at *fig.* 6. Since the attention of naturalists has been called to this subject, a large number of insects of this description have been discovered, especially amongst the Papilionidæ. I have on a former occasion alluded to an example of *Smerinthus Populi* in my possession, but the most extraordinary specimen that has come under my observation was a North American Lucanus, which Mr. Raddon showed me. Never having seen any other Hymenopterous insect of this kind, I have been induced to figure the Tenthredo in the annexed plate; and as the sexes vary in the colour and markings of the abdomen, &c., they are rendered conspicuous in the figure. I took this individual with a vast number of females off Fern in the New Forest in June; the males were very rare. I have also found the females in Coomb Wood in May.

13. neglecta *St. Farg. Mon.* 77. 229.—subinterrupta *Steph.*
Middle of June, Yorkshire and Scotland, J. C.

14. ornata *St. Farg. p.* 77. *no.* 228.—*Faun. Fran. pl.* 3. *f.* 5.

16. scutellaris *Fab.? Panz.* 98. 12.
Common in June and July.

17. ambigua *Klug. die Blatt. p.* 202. 146.

18. nassata *Linn.—Panz.* 65. 2. ♂.—Tiliæ *Panz.* 91. 13. ♀.
End of May and June, abundant in hedges.

19. Rubi? *Panz.* 91. 14. ♀.
Beginning of August near Manchester, and at Roundstone in Connemara.

21. antennata *Klug. p.* 129. 98.—duplex *Geoff.*?
Beginning of June, Glanville's Wootton, Mr. Dale.

23. Rapæ *Linn.—Schæf. Icon. pl.* 179. 1.
May and June, common in hedges.

6. dimidiata *Fab.* The lower recurrent nervure in this species, nearly meets the second in the submarginal cell, as in fig. 9*. Klug considers *T. dimidiata*, *scutellaris*, *nassata* and *Tiliæ* of Panzer to be one species, which he has named *instabilis*; but as the neuration of the wings is so different in *T. dimidiata*, I think *that* at least must be distinct.

Mr. Dale possesses a specimen with seven legs.

The Plant is *Spergula arvensis*, Corn Spurry.



436.

EMPHYTUS FASCIATUS.

Order Hymenoptera. Fam. Tenthredinidæ.

Type of the Genus, Tenthredo cincta *Linn.*

Emphytus *Leach, Curt.*—Dolerus *Jur., Le Pel. St. Farg.*—Tenthredo *Linn., Fab., Klug.*

Antennæ inserted in front of the face, approximating, half the length of the body, filiform, clothed with short pile and 9-jointed, basal joint cup-shaped, 2nd small, 3rd, 4th and 5th nearly of equal length, the remainder decreasing in length, the apical joint oval (1).

Labrum semiorbicular, pilose and ciliated with long hairs (2).

Mandibles, one forming a long acute tooth at the apex with an obtuse point below, the interior margin sinuated (3); the other elongate-trigonate, less acute at the apex, with 2 obtuse teeth below the centre on the inside (3 *).

Maxillæ broad, terminated by a rounded, slightly pubescent lobe with a long internal one, pilose, curved and acuminated at the apex. *Palpi* long pilose and 6-jointed, basal joint small, 2nd subclavate, scarcely so long as the 3rd which is linear, 4th the same length and clavate, 5th and 6th shorter, of equal length, the former subovate, the latter slender, linear, and slightly curved (4).

Mentum subrhombiform, truncated before and behind. *Palpi* rather long and pubescent, attached on each side towards the apex, 4-jointed, basal joint the shortest, 2nd nearly twice as long, curved and clavate, 3rd dilated, obtrigonate, 4th as long as the 2nd subovate. *Lip* suborbicular, emarginate on each side at the base, trilobed, centre lobe narrow strap-shaped (5).

Head *transverse:* eyes *prominent:* ocelli 3. Thorax *not broader than the head, globose.* Abdomen *sessile, rather long slender subcylindric, the back slightly angulated.* Oviduct *slightly exserted.* Superior wings *with 2 marginal and 3 submarginal cells, the central one being the shortest.* Legs *slender.* Tibiæ *simple, anterior short, furnished with 2 spurs at the apex, one dilated and bifid.* Tarsi, *anterior much longer than the tibiæ, 5-jointed, each joint excepting the last, with a membranous appendage beneath at the apex, basal joint long.* Claws *bifid near the apex.* Pulvilli *distinct* (8, *a fore leg*).

Fasciatus *Le Pel. Mon. Tent. p.* 118. *n.* 346.—*Curt. Guide, Gen.* 470. 5ª.

Black shining: 2 white spots at the base of the scutellum: abdomen with the 4th, 5th and 6th segments (excepting the hinder margin of the last) orange: nervures and stigma pale brown: tips of posterior coxæ and trochanters white: upper side of anterior thighs towards the apex and tips of middle pair dirty white: all the tibiæ and tarsi bright ochre, tips of the latter and the greater portion of the posterior pair fuscous.

In the Author's Cabinet.

Emphytus is placed between Dolerus and Crœsus (*pl.* 17.); from the former it is at once distinguished by the great length of the first submarginal cell, and from the latter and the Nemati also, by its having 2 marginal and only 3, instead of 4 submarginal cells.

The following are recorded as British species.

1. E. succinctus *Klug.*—togatus *Panz.* 82. 12.—June, July, and August; hedges and woods round London, Mr. Samouelle; and Parley, Dorset, Mr. Dale.
2. E. cinctus *Linn.*—*Jurine, Pl.* 6.—Middle of May, Coomb Wood, and gardens near London, J. C.—Glanville's Wootton, Mr. Dale; hedges and woods round London in June, July, and August.
3. E. togatus *Fab.*
4. E. melanarius *Klug.*
5. E. vicinus *Le Pel.* 118. 347.—Middle of August, Dover, and on leaves of Bur-reeds in ditches, Battersea, J. C.

5ª. E. fasciatus *Le P.*—*Curt. Brit. Ent. pl.* 436 ♀.—The only specimen I have seen of this pretty insect, which has never before been figured, I took the middle of June at Glanville's Wootton.

6. E. rufocinctus *Klug.*
7. E. calceatus *Klug.*
8. E. nigricans *Klug.*—varipes *Le P.*?
9. E. varipes *Klug.*—Beginning of May bred a male out of the stem of a Dog-rose (*pl.* 374.); the larva, which was found by Mr. E. T. Bennett, appeared to be feeding on the pith.
10. E. coronatus *Klug.*
11. E. luctuosus *Le P.* 119. 352.—14th May, Isle of Portland, J. C.
12. E. gilvipes *Klug.*
13. E. testaceipes *Le P.* 119. 351.
14. E. serotinus *Klug.*
15. E. abdominalis *Le P.* 118. 345.—Middle of October on a window, Glanville's Wootton.
16. E. cereus *Klug.*—June, July, and August, hedges and woods, Mr. Samouelle.
17. E. filiformis *Klug.*
18. E. tibialis *Jur.*—*Panz.* 62. 11.?—braccata *Gmel.*—June, July, and August, Parley, Dorset, Mr. Dale.
19. E. patellatus *Klug.*
20. E. immersus *Klug.*—pallimacula *Le Pel.*—Glanville's Wootton, Mr. Dale.
21. E. impressus *Klug.*
22. E. ochroleucus *Ste.*

Mr. Dale has a species of this genus with seven legs, and I have a fly (*Chrysogaster*) with the same number: in the second volume of Germar's Magazine there is a figure of *Elater variabilis* of similar structure; but the most remarkable perhaps is the *Chrysomela hæmoptera, fig.* 5*, *pl.* 111. of British Entomology.

The Plant is *Sparganium simplex* (Less Bur-reed).


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17.

CRŒSUS SEPTENTRIONALIS.

ORDER Hymenoptera. FAM. Tenthredinidæ *Lat.*

Type of the Genus Tenthredo septentrionalis *Linn.*

CRŒSUS *Leach.* Nematus *Jur., Lat.* Tenthredo *Linn., Fab.*

Antennæ inserted between the eyes, simple, in both sexes longer than the body (especially in the females), rather thicker in the middle, and tapering towards the apex, hirsute, 9-jointed, first joint short, second very short, the following long, and decreasing in length to the apex. (1.)

Labrum exserted, pilose and ciliated, transverse quadrate, convex at the sides, rounded and slightly emarginate before. (2.)

Mandibles exserted, robust, depressed, acute, with one internal tooth towards the apex. (3.)

Maxillæ narrow and corneous at the base (4. a.), dilated in the middle, and produced into a tooth on the internal edge (c.); apex membranaceous, and appearing ovate externally, from the edges curving inward: *Palpi* long, inserted near the centre of the external side, 6-jointed, first joint shortest, fourth and fifth longest, sixth nearly filiform. (b.)

Mentum quadrate, dilated and emarginate before (5. a.); *Palpi* 4-jointed, irregular, the third being the thickest. (b.)

Lip membranaceous, 3-lobed, the centre narrow and dilated at the apex, side lobes somewhat hemispherical, striated towards their apex, thickened at their margins and ciliated. (5. c.)

Clypeus *broad, emarginate.* Ocelli 3. Abdomen *sessile, short, cylindric in the male, deflexed in the female.* Oviduct *not exserted, composed of two lamellæ, which are serrated.* Superior wings *with the marginal cell complete, and 4 submarginal cells.* Tibiæ *of hinder legs dilated at their apex.* Tarsi 5-*jointed, first joint the longest, very much dilated and compressed in the posterior legs, as is shown in the coloured figure.* Claws *unidentate internally.* Pulvilli *in the centre.* (8. a fore-leg.) Larva *with* 20 *membranaceous feet.*

SEPTENTRIONALIS *Linn. Syst. Nat.* 2. 926. 36. *Fab. Ent. Syst. t.* 2. *p.* 119. *n.* 56.

Black, shining; head and thorax slightly punctured, pubescent, a pale yellow spot on each side the scutellum, third, fourth, fifth, sixth and seventh segments of the abdomen in the male, and third, fourth, fifth, sixth, and a spot on the seventh in the female, bright brick colour; base of thighs, tibiæ and tarsi in the 4 anterior legs ochraceous, base of tibiæ and coxæ in posterior legs whitish. Superior wings pale, ferruginous towards the centre.

In the Author's and other Cabinets.

* b. n. 52. Mus. Betula. Corylus. Fraxinus. Lepidium.

When I took the female figured in the plate, many years back, in a meadow near Bungay, Suffolk, it was considered a valuable species; but it has been frequently captured since, although never in any abundance. It is said to be taken at Darent Wood, Kent, in June; and Fabricius says the perfect insect is found amongst alders in the North of Europe, and that the caterpillars are gregarious, green, spotted black, with a yellow apex; many of the larvæ of this family are very similar in appearance to those of the Lepidoptera; they feed upon the leaves of plants, are often very brilliant, and have a peculiar manner of rolling themselves up if touched; when full-grown they curl up a leaf in the most artful manner to protect them in the chrysalis state: their feet are very differently situated to the Lepidoptera; and the accurate Jurine observes, that the number of them regulates the number of the marginal and submarginal cells in the superior wings, which shows the importance of a knowledge of the imperfect, to be thoroughly informed of the affinities of the perfect insect.

The present genus, of which we only know the species figured, was separated from *Nematus* of Jurine by Dr. Leach in the 3rd vol. of the Zoological Miscellany, in a paper upon the external characters of the Tenthredinidæ; the dilated tibiæ and tarsi in both sexes indicate a different mode of life to the other *Nemati*: this singular conformation appears occasionally in many of the Orders, although we are ignorant of its uses except in the pollinigerous Apidæ.

The insects of this family may easily be known by their ample wings of many complete cells, and perfectly sessile abdomen, and on more close inspection by their peculiar oviduct: when alarmed, many of them bend down their heads and antennæ very forcibly, so as to show the attachment of the thorax.

The plant figured is *Crepis Tectorum* (Smooth Hawk's-beard).



457.

CLADIUS PILICORNIS.

Order Hymenoptera. Fam. Tenthredinidæ.

Type of the Genus, Tenthredo difformis *Panz.*

Cladius *Lat., Leach, Le Pel., Curt.*—Pteronus *Jur.*—Lophyrus *Klug.*—Tenthredo *Panz.*

Antennæ inserted near the middle of the face, shorter than the body, tapering, pilose and 9-jointed, generally branched in the males; 1st and 2nd joints small, especially the latter, 3rd the stoutest and rather shorter than the following, curved and hooked at the base beneath, producing a branch above, the remainder nearly of equal length, the 4th and 5th being branched above (1): simple in the females.

Labrum semiorbicular hairy and ciliated (2).

Mandibles rather small curved and acute, notched on the inside, forming an obtuse tooth above the middle, pilose externally towards the base (3).

Maxillæ small, terminated by a suborbicular lobe, with an acute and ciliated one on the inside. *Palpi* long pilose and 6-jointed, basal joint subglobose, 2nd twice as long, 3rd much longer, attenuated from the middle, the remainder equally long but membranous and clavate, the terminal joint more strap-shaped (4).

Mentum small trapezate, sinuated before. *Labium* trilobed, centre lobe a little the narrowest and rounded. *Palpi* rather long, pubescent and hairy, 4-jointed, basal joint the slenderest, subclavate, two following subovate, 4th a little the longest, ovate-conic (5).

Head *transverse:* eyes *lateral and prominent:* ocelli 3. Thorax *suborbicular.* Abdomen *cylindrical, conical at the apex.* Wings *ample, iridescent, superior having a large stigma; one marginal and 4 submarginal cells, the basal one small and nearly obliterated, 3rd short and receiving a recurrent nervure in the middle, discoidal cell triangular.* Legs *rather small:* thighs *short:* tibiæ *simple, spurred only at the apex:* tarsi 5-*jointed, basal joint the longest.* Claws *and* pulvilli *distinct.*

Larva *hairy with* 6 *pectoral,* 12 *abdominal and* 2 *anal feet.*

Pupa *inclosed in a strong glossy cocoon.*

Pilicornis *Curt. Guide, Gen.* 473. 5.

Male black, shining slightly pubescent, minutely punctured: antennæ nearly as long as the body, tapering, thickly clothed with fine short hairs on the under side (*fig.* 1, *a*), 2nd joint nearly as large as the 1st, cup-shaped, 3rd joint stout, curved at the base and acute on the upper side at the apex, 4th joint nearly twice as long, slightly clavate, the upper side forming an acute angle at the apex as well as 2 or 3 of the following: mandibles ferruginous at the apex: wings pale yellowish-fuscous, the costa and stigma fuscous brown; nervures piceous: tips of thighs and tibiæ whitish ochre, hinder pair with a fuscous line down the inside: tarsi brownish-ochre.

In the Author's Cabinet.

Although most of the males of Cladius may easily be recognised, the females are not readily distinguished from some of the Nemati, *N. pallipes* St. Farg. for example, in which the 3rd submarginal cell receives a recurrent discoidal nervure in the centre; this submarginal cell, however, is the longest in Nematus, and the 1st discoidal cell forms a less perfect triangle than in Cladius; and although the 1st submarginal cell is indistinct in Cladius, it is altogether wanting in *N. pallipes*, notwithstanding many of the Nemati have 4 submarginal cells.

Cladius was established by Latreille, in his "Considérations Générales", in 1810, and contains the following British species:

1. C. difformis *Panz.* 62. 10 *mas.*

Found from the end of May to the middle of August in Copenhagen Fields, Coombe-wood, on Blackheath, in Darent Lane; near Bristol; Glanville's Wootton and Stafford Dorset, J. C. Dale, Esq.; Tynemouth Northumberland, G. Wailes, Esq.

Two or three years since my friend Mr. C. J. Thompson gave me some larvæ * that he found at Fulham on the under side of the leaves of the China rose, eating small holes through them: they were thickly clothed with short upright hairs, the head was ochreous, with two minute black eyes: the body green with a deeper line down each side and a darker one along the back; the anal feet did not assist them in walking. They were full fed about the 28th of July, when they spun cocoons amongst the leaves, and hatched the 11th and 12th of August: one that was stung by an Ichneumon produced a Tryphon the 20th of August.

2. C. rufipes *St. Farg. Mon.* 58. 167.—*Faun. Fran. pl.* 12. *f.* 5.
3. C. Morio *St. Farg.* 58. 168.

Females beginning of July, Dover, J. C.

4. C. pallipes *St. Farg.* 59. 169.—*Faun. Fran. pl.* 12. *f.* 6.
5. C. pilicornis *Curt. Brit. Ent. pl.* 457 ♂.

This insect, which I at first thought had only been the female of *C. difformis*, I found near London in June; the specimens which I consider to be the females of this species have simple antennæ, but longer than in *C. difformis.*

6. C. immunis, and 7. C. luteicornis *Ste.* are undescribed.

The Plant is *Vicia Cracca* (Tufted Vetch).

* See the outline figure in the Plate, and pl. 11. tom. 1. of the Annales de la Société Entomologique de France.


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4
5
Aira flexuosa

LYDA FASCIATA.

ORDER Hymenoptera. FAM. Tenthredinidæ.

Type of the Genus, Tenthredo Sylvatica *Linn.*

LYDA *Fab., Sam., Klug., Le Pelt., Curt.*—Pamphilius *Lat.*—Cephaleia *Jur.*—Tenthredo *Linn., &c.*

Antennæ inserted towards the middle of the face, setaceous and simple, but sometimes more robust in the male than female, composed of 25 to 30 joints, basal joint the most robust, 2nd somewhat cupshaped, 3rd not longer than the 1st nearly linear, the remainder insensibly diminishing in size to the end (1 the base). *Labrum* thin, horny and subcordate (2).

Mandibles long, curved and crossing, acute and rather slender, producing a large tooth on the inside near the middle (3).

Maxillæ terminated by 2 lobes the internal one subovate, the external dilated and very pubescent at the apex, the former but slightly so. *Palpi* very long and pubescent, except at the base, 6-jointed, basal joint short, 2nd rather the stoutest, but shorter than the following which are long and nearly of equal length, slightly tapering towards the apex, the 4th and 5th somewhat clavate, the terminal joint subconical at the apex (4).

Mentum oblong, horny. *Lip* rather large, fleshy, slightly hairy and trilobed. *Palpi* long and stout, pilose and 4-jointed, basal joint the smallest, the remainder nearly of equal length, 2nd suddenly narrowed at the apex, 3rd the stoutest, subclavate, 4th subovate (5).

Mouth *concealed by the* Clypeus *which is semicircular.* Head *large subquadrate or orbicular.* Eyes *remote, rather small and prominent.* Ocelli 3 *in triangle.* Neck *short.* Thorax *subglobose.* Wings *broad with* 2 *marginal and* 3 *complete submarginal cells, the external basal cell small, the intermediate divided at the middle, and the nervure of the internal one very much sinuated.* Abdomen *depressed, frequently broad, apex rounded.* Oviduct *not exserted.* Tibiæ *spurred at the apex,* 4 *posterior with a single spine also on the inside, below the middle.* Tarsi 5-*jointed.* Claws *bifid.* Pulvilli *distinct* (8† *hind leg*).

Larvæ *gregarious, with* 6 *pectoral, but no membranaceous feet, apex terminated by* 2 *appendages like horns.* Lat.

FASCIATA *Curtis's MSS.*—*Guide, Gen.* 474.

Black and shining, head and thorax coarsely punctured; base of antennæ ochreous; mouth, a subcordate spot between the antennæ and a minute one behind each eye, yellow; apex of mandibles ferruginous: scapulars yellow: wings stained yellowish-brown, superior with a darkish brown fascia across the middle; inferior brownish at the margin; stigma and nervures piceous: abdomen minutely punctured, black with a violaceous tint; a yellowish membrane at the margin of the basal joint, the 5th ochreous in the middle, the remainder entirely so, the 3rd and following joints with a yellow spot on the side of each segment, increasing in size towards the apex: legs yellow, base of coxæ and of 4 anterior thighs black; tarsi orange.

In the Cabinets of the British Museum and Mr. Newman.

The following are British species of this fine genus:—

1. L. Sylvatica *Linn.*—*Panz.* 65. 10. *fem.*—nemorum *Fab.*—*Panz.* 86. 8. *male.*

June, hedges and woods.

1ᵇ. L. fumipennis *Curt. MSS.* Larger than No. 1, but very similar, the antennæ are fuscous towards the apex, yellow at the base, without any black spot on the upper side of the 1st joint, and the wings are stained brownish, instead of a yellow tint.

I found both sexes many years since on gooseberry bushes in a garden in Norfolk.

2. L. Stigma *St.*

3. L. aurita *Klug. Berl. Mag.* 1808. *p.* 275. *tab.* 7. *f.* 3.

4. L. pratensis *Fab.*—*Schæf. pl.* 42. *f.* 8. & 9.?

5. L. flaviventris *DeG.*—depressa *Panz.* 65. 11.

Coombe Wood, and 10th May Cottrel Clough, Mr. R. Wood, Manchester.

6. L. Sylvarum *St.*

7. L. hortorum *Klug.*—fallax *Le Pel. St. Fargeau.*

8. L. inanita *Vill.*—inanis *Klug.*—*Faun. Fr. pl.* 14. *f.* 6.

Taken by Mr. E. Newman in Birch-wood, flying, the end of June.

8ᵇ. L. fasciata *Curt. Brit. Ent. pl.* 381.

The female figured was taken on a blade of grass in Darent Wood, the middle of June, by Mr. E. Newman.

9. L. marginata *Le Pel.*

I took a specimen many years since; and it has been captured by Captain Blomer in Pembrokeshire.

10. L. Arbustorum *Fab.*—lucorum *Vill.*

June, hedges Coombe Wood.

11. L. lutescens *Le Pel.*—*Panz.* 107. 7.

12. L. cingulata *Lat.*—*Faun. Fr. pl.* 14. *f.* 3.

13. L. Betulæ *Linn.*—*Panz.* 87. 18.

June, on the birch, nut, and hornbeam.

14. erythrocephala *Fab.*—*Panz.* 7. 9. *fem.*

June, hedges and woods. It frequents also the *Pinus sylvestris.*

The figures referred to in the *Faune Française* are not yet published I believe: I have copied the references from M. St. Fargeau's Monograph.

The Plant is *Aira præcox* (Early Hair-grass), communicated by the Rev. Professor Henslow.



CEPHUS FEMORATUS.

ORDER Hymenoptera. FAM. Tenthredinidæ *Lat.*

Type of the Genus, Sirex pygmæus *Linn.*

CEPHUS *Lat., Fab., Pz.*—Trachelus *Jur.*—Astatus *Klu.*—Sirex *Linn.*

Antennæ inserted in front of the face between the eyes, rather remote, longer than the thorax, slightly clavate and pubescent, composed of 21 joints, basal joint robust ovate, 2nd subglobose, 3rd and 4th long, the following to the 8th decreasing in length, where they become oblong and are transverse towards the apex, which is ovate (1).

Labrum minute, concealed beneath the clypeus, semiorbicular, emarginate, and ciliated with long hairs (2).

Mandibles large, crossing before the clypeus, tridentate, pilose externally, with a fascicle of hairs on the inside; one mandible with the internal tooth very large and spreading (3).

Maxillæ terminated by a rather long subovate pilose lobe, furnished internally with a long lobe attached by the centre, the superior portion rigid and pilose, the inferior part coriaceous and pubescent. *Palpi* long, 6-jointed, basal joint short, 2nd a little longer, 3rd longer and the most robust, 4th very long slender and slightly clavate, 5th oval, 6th longer than the 3rd slender and attenuated at both ends (4).

Mentum long oval and narrowed below the apex, which as well as the base is rigid. *Palpi* inserted at the anterior angles, as long as the lip, pilose, 4-jointed, basal joint not very long, 2nd rather shorter, 3rd cup-shaped, 4th as long as the 1st subfusiform, being dilated most towards the base. *Labium* as long as the mentum composed of 3 lobes, united before the base, pubescent at the apex and ciliated with spines, the central lobe being the longest (5).

Clypeus *broad.* Head *subglobose, transverse above.* Eyes *prominent.* Ocelli 3 *on the crown of the head.* Prothorax *rather long and narrower than the* Mesothorax, *which with the* Scutellum *forms an oval.* Abdomen *sessile, rather long, narrow, cylindric, compressed towards the apex in the females.* Ovipositor *short and exserted.* Superior wings *with* 2 *marginal and* 4 *submarginal cells.* Legs *rather slender.* Tibiæ *spurred, intermediate with one, posterior with two spurs towards the middle.* Tarsi *longer than the tibiæ,* 5*-jointed, each joint having a small membranous appendage beneath.* Claws *long slender and bifid near the apex.* Pulvilli *distinct* (8†, *hind leg*).

FEMORATUS *Nob.*

Black, shining. Palpi testaceous. Head densely pilose. Abdomen with the membrane at the base subtrigonate and sulphureous. Wings very iridescent, costa stigma and nervures piceous. Legs ferruginous ochre, tips of posterior thighs fuscous, middle and posterior tibiæ sulphureous at the base, the remainder in the latter black; anterior tarsi at the tips, and the others entirely black.

In the Cabinets of the British Museum and the Author.

Dr. Leach's group Xiphydriadæ has been always included by Latreille with his Tenthredinidæ: it is not necessary here to inquire whether it be expedient to establish two families, but it is evident that Cephus does not belong to Dr. Leach's group; for the perfectly developed and trilobed labium and long palpi show that its habits are similar to those of the Tenthredinidæ; its posterior tibiæ also, spurred towards the middle, are similar to those of Hylotoma (*pl.* 65): and it is stated by the learned naturalist of Paris, that the larvæ of a new species (*C. abdominalis*, Lat.) live upon the flowering buds of fruit-trees, and do them a great deal of mischief.

The following are British Cephi.

1. C. Troglodyta *F.*—*Panz.* 83. 12.—*Klug.* 49. *pl.* 6. *f.* 1, 2.
2. C. pygmæus *Linn.*—*Klug.* 50. *pl.* 6. *f.* 3.—spinipes *Panz.* 73. 17.—*Klug.* 51. *pl.* 6. *f.* 4. *a. b.*—viridator *Fab.*
 June, on flowers in fields; beginning of July, females in abundance on white umbellate flowers on the sides of roads near Dover, but not one male. Also upon grass in woods at Southgate.
3. C. pallipes *Klug.* in the *Berlin Transactions*, 53. *pl.* 6. *f.* 6.
4. C. floralis *Klug.* ditto ——————— *pl.* 6. *f.* 5. *a, b.*
5. C. analis *Klug.* 54. *pl.* 7. *f.* 1.—hæmorrhoidalis *Jur. pl.* 7. *Gen.* 9.
6. C. tabidus *F.*—*Panz.* 85. 11.—*Klug.* 56. *pl.* 7. *f.* 3. *a, b.*—Took a pair at Dover with *C. pygmæus* the beginning of last July: found also upon grass in woods at Southgate by Mr. F. Walker.
7. C. pusillus *Step.*—punctatus *Klug.* 55. *pl.* 7. *f.* 2. *a, b?*
8. C. Satyrus *Panz.* 85. 12.
9. C. phthiscus *Fab. Piez.* 251. 5.
10. C. femoratus. *Curt. Brit. Ent. pl.* 301.—On the 4th June, 1824, I took the specimen figured, off an oak in a meadow in the neighbourhood of Lyndhurst, Hampshire.

The plant is *Ranunculus arvensis* (Corn Crowfoot).



Published by J. Curtis London July 1 1824

30.

XYELA PUSILLA.

ORDER Hymenoptera. FAM. Xiphydriadæ *Leach.*

Type of the Genus X. pusilla *Dal.*

XYELA *Dalman.*

Antennæ inserted in the front of the face between the eyes, long, slightly hairy, 12-jointed; first joint cylindric; second short, obconic; third robust, cylindric, equal in length to the nine following joints which are filiform, the terminal joint being the smallest. (1.)

Labrum membranaceous, narrowed towards the anterior margin which is entire, ciliated. (2.)

Mandibles corneous, slightly curved, acute with three irregular teeth on the internal margin. (3. 3.)

Maxillæ membranaceous, bilobed, ciliated, the superior lobe being terminated by a smaller one. *Palpi* very long, appearing like feet, 4-jointed; first joint short; second long, bent, clavate; third very long, dilated towards the centre, attenuated to the apex, which has a small head, hollow internally; fourth joint as long as the second, membranaceous, flat.

Mentum dilated anteriorly: *Palpi* 4-jointed; first and third joints small; second longer; fourth joint large, somewhat obovate bent inward. (5.)

Lip obsolete.

Head *transverse, depressed.* Eyes *lateral.* Ocelli 3, *approximating, placed triangularly.* Neck *short, broad.* Thorax *not broader than the head.* Abdomen *sessile, nearly cylindric,* 10-*jointed.* Oviduct *exserted, compressed.* Ovipositor *ensiform, membranaceous towards the edges, corneous down the centre* (7. b.), *inclosed between* 2 *lanceolate lamellæ, hairy outside* (7. a.): *fig.* 6. *represents the under side of the oviduct, and part of the abdomen.* Legs *placed far behind.* Tibiæ *slightly hairy with a spine at the apex, the posterior with* 2 *bristles on the external edge.* Tarsi *hairy, as long or longer than the tibiæ, first joint the longest.* (8. *a fore leg.*) Wings *large, superior ones with* 18 *cells,* 3 *marginal, and* 2 *submarginal complete.* Stigma *large.* Inferior wings *with many cells.*

The male (*Dalman says*) *is smaller, the anus is simple, not mucronated, the last segment large, scutiform, entire.*

Eggs *somewhat oval.* Metamorphosis *and economy unknown.*

PUSILLA *Dalman in Trans. Stockholm Soc. April* 1819. *p.* 123.

Smooth, shining. Head black, clypeus and eyes margined with yellow. Thorax black, with two orange spots on the anterior part; two first segments of abdomen with a yellow spot in the centre, the remainder of the segments brunneous pale at margins, and at the apex. Legs, oviduct and trophi dull ochraceous. Antennæ and thighs fuscous. Wings stained pale ferruginous. Stigma darker.

In the Cabinets of Mr. Stephens and the Author.

This Genus, which so beautifully unites the *Tenthredinidæ* with the *Uroceridæ*, evidently belongs to the family *Xiphydriadæ* of Leach, although Dalman in his valuable paper upon this Genus in the Stockholm Transactions (which are well worth the perusal of the entomologist) considers that it belongs to the *Uroceridæ:* the ample wings, however, and large stigma bear considerable affinity to the genus *Lyda*, whilst it cannot be denied that the compressed oviduct brings it close to *Xiphydria*. Dalman, in his description, has overlooked the twelfth joint of the antennæ, which is the smallest, and also one of the joints of the labial palpi, which he describes as only 3-jointed. Although the structure of this insect is altogether remarkable, no part is, I think, more curious than the maxillary palpi, which upon the insect look like feet; and from the legs being placed far behind, it is not improbable that they may occasionally be employed like those members: the second and third joints are hollow, which probably enables the insect to fold them close for protection, and the terminal joint is perfectly flexible.

Of this rare and interesting insect I have three females, taken by myself many years back upon umbelliferous plants in the vicinity of pines, in Norfolk, where those trees abound; and Mr. Stephens has one which was taken in the neighbourhood of London. The male I have never seen; but from the description, and an excellent figure given by Dalman, it appears to differ from the female only in being much smaller, and in its abdomen, which is more cylindric, rounded and simple at the anus. Another species much larger, called *X. longula* by the same author, has been taken in Sweden by Gyllenhal.

Our species appears not to be uncommon in Sweden, where it is said to be found upon *Pinus sylvestris* (Pl. 7.) during the month of July. *Chærophyllum sylvestre* (Wild Chervil) being the umbelliferous plant upon which I believe my specimens were taken, it is figured in the Plate.



460.

ORYSSUS CORONATUS.

Order Hymenoptera. Fam. Siricidæ *Curt.*, Uroceridæ *Lat.*

Type of the Genus, Oryssus coronatus *Fab.*

Oryssus *Lat., Fab., Jur., Leach, Curt.*—Sphex *Scopoli.*—Sirex *Panz.* *Antennæ* inserted beneath the clypeus, at the base of the mandibles, shorter than the head and thorax, curved, compressed and 11-jointed in the males, "2nd and 3rd joints obconic, the former very short, the latter longer than the following, the 4th and remainder nearly equal in length, terminal joint with the apex acuminated." *Lat.*—10-jointed in the female, and slightly increasing in breadth to the apical joint; basal the stoutest, subglobose, 2nd small ovate, 3rd much longer spatulate, 4th and 5th short, subquadrate, 6th the longest, 7th and 8th shorter, 9th longer than the 8th, somewhat sabre-shaped, 10th small and slender, pubescent and truncated (1 ♀).

Labrum exserted, coriaceous, small suborbicular, flat, ciliated before with soft hairs. *Lat.*—Lobe membranous, subovate, the apex elongated, strap-shaped (2).

Mandibles somewhat wedge-shaped, rounded at the apex and pubescent, clothed externally with longer hairs (3).

Maxillæ terminated by a horny curved process, pilose externally, with a large suborbicular membranous lobe on the inside. *Palpi* long, pubescent and 5-jointed, basal joint long, subclavate, 2nd short obconic, 3rd longer and stouter than the 1st, 4th the longest linear, 5th the slenderest and as long as the 1st (4).

Mentum small, cylindric, slightly narrowed at the middle. *Lip* as large as the mentum, compressed, subconic and slightly concave above. *Palpi* much smaller than the maxillary, rough with short hairs, triarticulate, basal joint clavate, 2nd minute, 3rd a little longer and broader than the 1st, truncated obliquely (5).

Head *orbicular, with a crown of tubercles on the top:* eyes *ovate, more remote before than behind:* ocelli 3 *in triangle.* Thorax *not larger than the head.* Abdomen *sessile, subcylindric, slightly clavate and conical at the apex.* Ovipositor *concealed in a groove beneath.* Wings *rather short, superior with one long marginal, and 3 imperfect submarginal cells, the 1st and 2nd being united, the 3rd very long.* Legs *rather small:* thighs *short.* Tibiæ *all furnished with 2 spurs at the apex in the* male, *and the tarsi more elongated and 5-jointed.* Tibiæ *of the female, anterior very short and attenuated at the base, with a notched spine on the inside of the apex, and an oblique suture above the middle, appearing like a joint; the others angulated and acute at the apex on the outside, the posterior slightly serrated.* Tarsi *triarticulate in the fore feet, basal joint long and rounded, 2nd the shortest, inserted on the side before the apex of the 1st, pear-shaped but truncated obliquely, 3rd longer and clavate, the others 5-jointed and spined beneath at the apex, basal joint long, 4th minute.* Claws *and* pulvilli *small* (8, *fore leg of female*).

Coronatus *Fab., Curt. Guide, Gen.* 480. 1.—Vespertilio *Klug., Panz.*

In the Cabinet of the British Museum.

* Want a Female (s. 21, 2 sp.

This curious insect bears a considerable resemblance to the Tenthredinidæ, but is nearest allied to Sirex, as is evident by the triarticulate labial palpi: it may therefore be viewed as the connecting link of Xiphydria and Sirex. The mouth affords some further peculiarities; and I regret that I did not discover the external part of the labrum, having found only a membranous lobe inserted beneath the clypeus: neither could I procure a male for examination. The mandibles are rounded and spoon-shaped, the external lobe of the maxillæ is rigid, and the 2nd joint of their palpi the smallest, and the labium is not divided, but hollow and similar to the Ichneumonidæ.

Oryssus is very peculiar in its structure: the sexes vary considerably; the antennæ, which are inserted under the clypeus, are 11-jointed in the male, and 10-jointed in the female; the oviduct is capillary and rolled up spirally in the abdomen, as it is, I think, in some of the Cynipidæ and Diplolepidæ; the submarginal cells are only 2, but 3 are indicated; the anterior tibiæ are so singularly formed towards the apex in the females as to appear like a basal joint to the tarsi, which are only triarticulate in the fore feet of this sex.

The only species of the genus is

O. coronatus *Fab.*—*Curt. Brit. Ent. pl.* 460. ♀.—*Coq. tab.* 5. 7. ♂ *et* ♀.

Black shagreened: eyes fuscous, a white stripe on each side the face; antennæ with the 3rd joint except at the base, the 4th, 5th, and a spot at the base of the 6th white; abdomen smooth and rufous, excepting the 2 basal joints: wings, superior with the apical portion fuscous, excepting the tip which is transparent as well as a band beyond the stigma, this as well as the nervures is piceous; a spot at the apex of the thighs and an abbreviated stripe outside the tibiæ white; tarsi and inside of the posterior tibiæ subferruginous.

Two specimens of this rare insect, taken by Dr. Leach, are in the British Museum: the male is smaller than the female: the former was captured in Devon, the latter in Darent Wood, in July. It is said to inhabit sandy situations: and the discovery of these insects in England is very remarkable; for I believe they have never been found to the North of Brives in the South of France.

Latreille says these insects are lively and restless: they repose in preference upon old trees, exposed to the sun. They run over a portion of their height with rapidity in a straight line, taking, when they are alarmed, a lateral or retrograde direction. Scopoli found them upon fir-trees, and Latreille upon old hornbeams in the spring.

The Plant is *Phalaris canariensis* (Manured Canary-grass).



Paururus

(SIREX) JUVENCUS.

ORDER Hymenoptera. FAM. Siricidæ *Nob.*—Uroceridæ *Lat., Leach.*

Type of the Genus Sirex juvencus *Linn.*

SIREX *Linn., Fab., Jur., Panz., Klug.*—Urocerus *Geoff., Lat., Leach.* *Antennæ* inserted in front of the face, longer than the thorax, nearly filiform, containing from 17 to 23 joints, those of the female composed of the greater number, basal joint the most robust, 2nd globose, 3rd as long as the 1st, the remainder decreasing in length to the last which is often a little longer (fig. 1, basal joints of antenna of the male from which sex all the dissections were taken).

Labrum but partially exserted, tongue-shaped, very rigid towards the apex and pilose on the sides (2).

Mandibles rather small, short, subtrigonate and tridentate at the apex, producing rather soft and long hair externally and internally (3).

Maxillæ uniting at the base of the mentum, not so long as the lip (4*), terminated by a narrow pilose, membranous lobe, twice as long as the *Palpi*, which are very small and arise from a thickened shoulder of the maxillæ; biarticulate? the terminal joint very minute (4).

Mentum small transverse, narrowed at the base (5). *Lip* rather large, coriaceous at the base, the apex forming a membranous lobe, thickly clothed with long pubescence. *Palpi* inserted near the base, very much larger than the maxillary; triarticulate, basal joint small, 2nd rather longer, 3rd large and clavate, producing very long hairs, especially on the internal side (5b).

Head *not large but suborbicular.* Ocelli 3, *between the* Eyes *which are small and not quite lateral.* Thorax *shield-shaped, anterior angles produced.* Abdomen *long cylindric, perfectly sessile, acuminated, especially in the female.* Ovipositor *exserted.* Wings *with 2 marginal and 4 submarginal cells.* Legs *rather long, hinder tibiæ and tarsi dilated in the males.* Thighs *short and robust.* Tibiæ *with 2 short spurs at the apex, except in the anterior pair, which have a single spine dilated into a lobe near the apex which is acuminated.* Tarsi *very long, basal joint the longest, 4th minute.* Claws *strong, bent and bidentate.* Pulvilli *distinct in the males* (8, *a fore leg*).

Larvæ *with 6 pectoral feet, body armed at the apex with a spine.* Klug.

JUVENCUS *Linn. F. S.* 1575. *fem.*—noctilio *Fab. E. S.* 2. 130. 22. *male.*

Male dark green, punctured, head thorax and base of abdomen very pubescent, 3rd and 8th joints of the latter purplish, the intermediate space orange coloured. Eyes legs and wings ochreous, nervures ferruginous. Thighs and hinder legs bluish black, the penultimate joint of tarsus and base of tibia ochreous.

Female blackish purple, base and apex of abdomen chalybeous. Legs ochreous, tarsi piceous at their tips.

In the Author's and other Cabinets.

v Jurine G. 1831 - Sirex cylindricus

The Sirices appear to be most destructive insects to dead trees and timber; which is not surprising when it is stated, that the eggs are deposited in clusters of two or three hundred; and the largest maggots, when full grown, are about $1\frac{1}{4}$ inch in length. It is remarkable how much insects whose larvæ are xylophagous vary in size; for, whilst some specimens of *Sirex juvencus* are as large as those represented in the plate, others (especially females), from the same trees are not more than a quarter the size. There are two species of this fine genus found in Britain, the sexes of which are so dissimilar, that they have been described under four names.

1. S. Gigas *Linn. fem.—Kirby & Spence, tab. 4. f. 1.—Don. 6. 197.*—S. Marisca *Linn. male: Panz. 52. 20.*—psyllius *Fab. var. fem.*

June, rare. Pine and Lime-trees. Norwich, Wiltshire, Kent, Berkshire, and in and near London.

2. S. juvencus *Linn.—Curtis Brit. Ent. pl. 253.*

July, August, and September. Fir groves, &c.; Norfolk, Suffolk, Hampshire, and Yorkshire.

For a fine series of this insect, including the beautiful specimens figured, I am indebted to my kind friend the Hon. Charles Harris, as well as for the following valuable observations relating to the destruction of fir-trees in the plantations near Heron Court, the seat of the Earl of Malmesbury. "With us," says Mr. Harris, "at the age of twenty the fir-trees sometimes die to a great extent. The summer of 1825 or 1826 was peculiarly destructive to them, from its intense heat and drought; and I am certain that I never saw any trace of a Sirex except on *dead* trees. The smell of the turpentine would fully account for this; and if you remember, the only spot where we could detect the Sirex in the standing plantation of shorter trees, was on some dead stumps that had evidently been overgrown by the others. The day after your departure I went to visit the fir wood, when I had the good fortune to extract eight males of the Sirex; two of these I purposely let go; they proved very strong on the wing, and ascended with a loudish hum to an invisible height." From this it appears that the mischief arises from allowing dead trees to remain standing or lying about; and timber ought to be well examined before it is employed in building; for I understand that considerable numbers of the males have been taken flying about the tower of York Minster, no doubt seeking the females which were issuing from the timbers that supported the roof, and which would be, of course, greatly weakened by the constant and continued operations of the Larvæ, as well as rendered more combustible by the multitude of passages and the quantity of dust which they create.

The plant is *Lapsana communis* (Common Nipplewort).



EVANIA FULVIPES.

ORDER Hymenoptera. FAM. Evaniidæ *Lat.*, *Leach.*

Type of the Genus Sphex appendigaster *Linn.*

EVANIA *Fab.*, *Jur.*, *Lat.*, *Panz.*, *Sam.*—Ichneumon *De G.*—Sphex *Linn.*

Antennæ inserted in front of the face, approximating, slightly attenuated, 13-jointed, basal joint long, subclavate, 2nd minute, 3rd as long as the 1st, remainder decreasing in length to the end (1, the basal; 1 b, the apical joints).

Labrum concealed beneath the nasus, membranous, suddenly attenuated and forming a coriaceous lobe, margined with a few long and rigid bristles, the membranous portion dilated beneath and pubescent at the edge (2).

Mandibles nearly alike, pilose trigonate, with a deep cleft below the apex, forming 2 large teeth, with a slight shoulder on the outside (3).

Maxillæ terminated by a large rounded pubescent lobe, with a very minute internal one. *Palpi* pubescent, 6-jointed, basal joint short, 2nd and 3rd long robust, subclavate, the latter rather the longest, the remainder very slender, 4th considerably longer than the 5th, the 6th as long as the 2 former united (4).

Mentum forming a shield, subovate, dilated on the sides towards the base, anterior edge emarginate. *Palpi* arising from the sides of the lip, behind the mentum, large pubescent 4-jointed, 1st joint slender at its base, truncated obliquely, 2nd robust obovate externally pilose, the other 2 pilose internally, 3rd joint subtrigonate, dilated on the inside, 4th long attenuated subconic. *Lip* concealed by the mentum, cylindrical, divided in front, and producing 2 flat lobes on each side (5).

Head *transverse*. Eyes *oval*. Ocelli 3. Thorax *globose*. Metasternum *very large obtuse*. Scutellum *triangular, near the apex of which is inserted the petiole, which is rather long and stout*. Abdomen *compressed ovate or trigonate*. Ovipositor *not exserted*. Wings *sometimes with 2 discoidal and 3 apical cells* (9). Hinder legs *very long*. Coxæ *long*. Tibiæ *simple spurred*. Tarsi 5-*jointed, basal joint long, penultimate one minute*. Claws *bifid* (8, *a fore leg*).

FULVIPES *Nobis*.

Black shining variolous. Antennæ rather thickened towards the apex, the 3rd joint not much longer than the 2nd. Head, trunk and petiole pubescent, the former transverse globose. Abdomen ovate, very shining. Wings with the discoidal and apical nervures wanting. Four anterior legs with the apex of the thighs, the tibiæ, and tarsi fulvous.

In the Cabinets of Mr. Dale and the Author.

Wings a joule

The remarkable insect which is the type of our genus, has been ascertained by the late Dr. Arnold to be one of those destined to destroy the Blattæ; whether by depositing its eggs in their larva or ova, is I believe not known.

As the species vary in the structure of the trophi, and in the nervures of the wings, they have been thus divided by Latreille.

I. Antennæ with the 3rd joint much longer than the 2nd. Upper wings with distinct discoidal cells.

* Mandibles unidentate (or bidentate). Labial palpi with the penultimate joint much dilated, &c.

1. E. appendigaster *Linn.*, *Reaum. tom.* 6. *pl.* 31. *f.* 13.—*Rœmer, t.* 35. *f.* 7.—*Kirby & Spence, tab.* 4. *f.* 2.—*Don.* 10. 329.—lævigata *Lat.*

Entirely black.

This was the only species known to Linnæus. I think the *E. lævigata* of Latreille is the same; and that the *E. appendigaster* of this author is distinct, for Linnæus describes his insect as entirely black.

This species is said to inhabit America, Jamaica, the Cape of Good Hope, the Isle of France, New Holland, Spain, and England, where it may have been introduced with the Cockroaches.

** Mandibles tridentate. Labial palpi with the penultimate joint not much dilated, &c.

2. E. flavicornis *Nobis*—appendigaster *Lat.*, *Oliv.*, *Panz.* 62. 12. *var.*—*Jur. pl.* 7. *Gen.* 1.

Black. Antennæ, tarsi, and 4 anterior tibiæ rufous. In Panzer's figure the body and all the legs are rufous also.

Inhabits the South of France, Spain and Italy. I am not aware that it has been discovered in Britain.

II. Antennæ with the 3rd joint not much longer than the 2nd. Upper wings with no discoidal cells.

3. E. fulvipes *Curtis Brit. Ent. pl.* 257.

Mr. Dale first discovered this new insect a few miles from Dorchester; and the 22nd of last August I found a specimen under a flag of turf in the beautiful plantations of Ramsdown near Heron Court, Hants.

4. E. minuta *Fab.*, *Oliv.*, *Coq. pl.* 4. *f.* 9.

Smaller than the last, and entirely black.

Mr. Dale has taken this insect upon Parley Heath, Dorset, where *Blatta lapponica* abounds; and having found them at the same time (3rd September) and on the same spot, he conjectures that this little Evania is the parasite of that Blatta.

I am indebted to Mr. R. Chambers, F.L.S. for specimens of the pretty plant represented, *Campanula hederacea* (Ivy-leaved Bell-flower).


2
1
1
3
4
5

FŒNUS ASSECTATOR.

Order Hymenoptera. Fam. Evaniidæ.

Type of the Genus, Ichneumon Assectator *Linn.*

Fœnus *Fab., Lat., Jur., Panz., Curt.*—Gasteruption *Lat.*—Ichneumon *Linn., &c.*

Antennæ inserted in front of the face, as long as the thorax, straight, filiform and velvety; 13-jointed in the male, 14-jointed in the female (1 ♀), basal joint ovate, a little the stoutest, 2nd the smallest, cup-shaped, 4th a little longer than the 3rd, the remainder decreasing in length to the apical joint which is as **long as the 4th and linear-ovate.**

Labrum membranous, broad ciliated and deeply notched in the centre, from whence arises a tongue-shaped lobe, hairy towards the apex with a large triangular membrane beneath (2).

Mandibles acute at the apex, oblong, truncated obliquely, one **having a very large triangular tooth on the inside (3).**

Maxillæ terminated by a large oval pilose lobe, with a narrow ciliated one on the inside. *Palpi* moderately long, slightly pilose and 6-jointed, 3 basal joints the stoutest, oblong, the 3rd being a little longer than the 1st and 2nd; 4th the longest, clavate, **5th and 6th a little shorter, the latter linear-conic (4).**

Mentum oblong, narrowed and rounded at the base, the anterior angles truncated, and producing large fleshy scapes to which are attached the *Palpi*, they are rather long pilose and composed of 4 clavate joints, the 3rd a little the shortest, 4th the slenderest, **linear-conic.** ***Lip* strong, shorter than the mentum (5).**

Head *subovate or orbicular, attached by an elongated neck.* Eyes *lateral ovate.* Ocelli 3 *in triangle on the crown of the head.* Thorax *narrow and compressed.* Abdomen *very long compressed narrow and clavate, slightly arched and very slender at the base, composed of* 8 *joints.* Ovipositor *long.* Wings *short, marginal cell large,* 2 *large submarginal cells and* 3 *irregular areolets in the centre: inferior with a few very fine nervures.* Legs *rather short.* Coxæ; *posterior large and contiguous; trochanters long.* Thighs; *hinder pair the stoutest.* Tibiæ *short, posterior clavate with a small spine, anterior with a curved one near the apex.* Tarsi 5-*jointed, hinder pair the stoutest, basal joint the longest,* 4*th small.* Claws *and* Pulvilli *minute* (8, ***fore leg***).

Assectator *Linn. Faun. Suec.* 407. 1627.—*Curt. Guide, Gen.* 483. 2.

In the Author's and other Cabinets.

These remarkable insects are by no means common: I had not seen one alive for many years until last June, when I took

several specimens of the *F. Assectator*, and they reminded me in their flight of the *Ammophila vulgaris*, from the singular manner in which they raised their bodies. The following observations I have copied from Latreille. "They live upon flowers, and often elevate their abdomens in a state of repose: during the night, or when bad weather prevents them from flying, they fix themselves by their mandibles to the stalks of different plants, and are then almost in a perpendicular position. They are often met with in dry and sandy districts, flying with solitary bees and Spheges in order to discover their nests and take possession of them, or to deposit their eggs by the side of those of the above insects, or upon their larvæ, which become their prey. The larvæ undergo their metamorphoses in the same nest where they lived." Linnæus says, on the authority of Bergman, that *I. Jaculator* inhabits the larvæ of *Apis truncorum*, *florisomnis*, and *Sphex Figulus*, examining with its antennæ where the larva is concealed, it flies away, returns, and deposits an egg in it.

1. F. Jaculator *Linn. F. S.* 406. 1626.—*Panz.* 96. 16 ♀.—*Jurine, pl.* 7. *Gen.* 2. ♀.

 Black, slightly glossy: head excessively thickly and minutely punctured, forming fine transverse lines: thorax coarsely punctured and reticulated: abdomen with the 2nd and 3rd joints reddish yellow: ovipositor as long as the rest of the insect: base of 4 anterior tibiæ white; posterior with a white ring near the base and another on the 1st joint of their tarsi.

 Taken near London and in Norfolk in June.

2. F. Assectator *Linn.*—*Curt. Brit. Ent. pl.* 423. ♀.

 Smaller; silky black, head and thorax excessively minutely punctured, the latter also variolose or like the end of a thimble: abdomen with 3 reddish irregular bands on the 2nd, 3rd and 4th segments: ovipositor not half the length of the abdomen: tibiæ with a white ring near the base: tips of the thighs sometimes white.

I took both sexes of this insect towards the end of June, flying about the southern sides of rocks and over sandy places at the back of the Isle of Wight: it has also been taken by Mr. Dale in Devon, and sometimes met with, I believe, near London.

The Plant is *Orchis latifolia* (Marsh Orchis).



728.

ICHNEUMON AMATORIUS.

ORDER Hymenoptera. FAM. Ichneumonidæ.

Type of the Genus, Ichneumon Comitator *Linn.*

ICHNEUMON *Linn.*, *Grav.*, *Curt.*, &c.

Antennæ inserted in the middle of the face, approximating, not quite so long as the wings in the male, straight, tapering to the base and apex, basal joint the stoutest, oval, 2nd semiorbicular, 3rd the longest (1 *a*), the remainder short, with a slight serrated appearance internally: often shorter, stouter, and curved in the female.

Labrum transverse, semiovate, the margin ciliated, with a triangular membranous lobe in the centre (2).

Mandibles small, curved and bifid at the apex, pubescent externally (3).

Maxillæ small, with an internal lobe and an external one larger and orbicular, both ciliated. *Palpi* long, slender, pubescent and 5-jointed, basal joint long and slender, 2nd longer, stout and cleaver-shaped, 3rd as long, 4th scarcely so long, 5th the longest and slenderest (4).

Mentum obovate-truncate. *Lip* short, semicylindric rounded, notched in the middle. *Palpi* pubescent and 4-jointed, basal joint elongate-clavate, 2nd and 3rd stouter, shorter and somewhat obovate, 4th considerably the longest, slender linear and curved (5).

Head *short, transverse, face ovate-trigonate* (1 *): eyes *lateral, elongate-ovate:* ocelli 3, *forming a depressed triangle on the crown.* Thorax *elongate-ovate:* scutel *ovate-truncate:* metathorax *with 4 elevated lines united at both ends.* Abdomen *longish, curved, elliptical, attached by a flat petiole, dilated at the extremity, 2nd segment the longest, apex more or less conical.* Wings *with a long marginal cell;* areolet *quinquangular.* Legs, *hinder the longest and stoutest:* coxæ, *posterior stout:* thighs *moderate:* tibiæ, *anterior short with a spine at the apex, the others spined:* tarsi, *hinder the longest, 5-jointed, 4th joint the shortest:* claws *and* pulvilli *rather stout.*

Obs. *figures* 1 *to* 5 *are from* I. luctatorius *Linn., and fig.* 9 *is the abdomen of* I. amatorius *in profile.*

AMATORIUS *Mül.—Curt. Guide, Gen.* 484. 112.

Female black; antennæ curved, base black gradually becoming brown, and at the 8th joint ochreous, 8 following of the same colour: head and thorax thickly punctured and clothed with short brown pubescence; internal orbits of eyes yellow; scutel semiovate, of the same colour: scapulæ and 2 dots before them yellowish: metathorax roughly, abdomen finely punctured, 2nd segment rufous with a yellow margin, the remainder also margined with yellow, 2nd and 3rd segments rufous beneath: wings yellowish-brown, nervures darker; stigma, tips of thighs, especially the anterior, tibiæ and tarsi bright ochre.

In the Author's Cabinet.

IN 1828 I published a figure, &c. of *Ichneumon Atropos* (Pl. 234), which appeared to be a typical species, but Gravenhorst

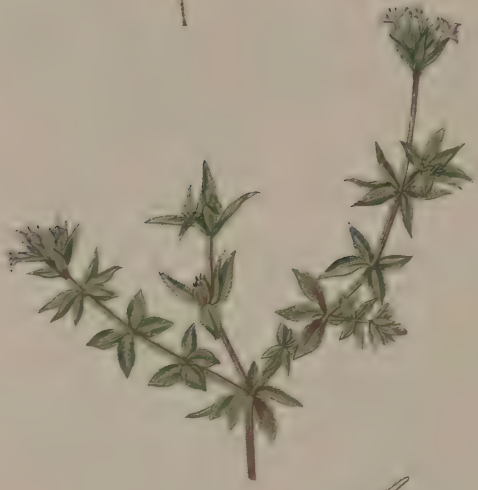
in his Ichn. Europ. having called the group Trogus, to which that species belongs, it will be necessary to adopt his name, and I avail myself of this opportunity to illustrate the group which he now considers as the true Ichneumons. Having given in my Guide the most complete catalogue of the Ichneumonidæ that has ever been published, a reference to that will show the species belonging to this family, and I cannot perhaps do more service to those who do not possess Gravenhorst's work, than translate his characters of the genera and sections of the tribe before us.

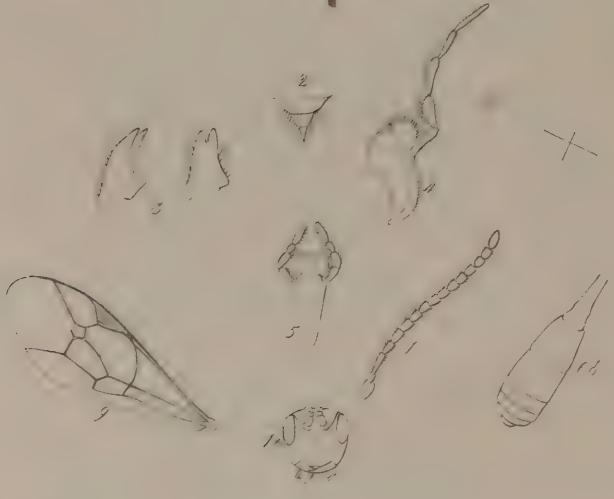
	Guide Genus.
Head transverse.	
Scutel elevated Trogus.	496.
Scutel flat.	
Posterior legs not at once stout and elongated.	
Aculeus of female concealed, or somewhat exserted.	
Areolet 5-angular, very rarely triangular, or none.	
Antennæ serrated Pristiceros.	485.
Antennæ simple.	
Abdomen cylindric . . . Ischnus.	486.
Abdomen ovate or oblong.	
Areolet none.	
Wings long Crypturus.	487.
Wings very short . . Brachypterus.	489.
Areolet distinct.	
Exterior cell incomplete Stilpnus.	488.
Exterior cell complete . Ichneumon.	484.

Sect. 1. Scutel and abdomen entirely black.
2. Scutel and abdomen black, apical segments spotted with white.
3. Scutel pale or with pale spots; abdomen totally black.
4. Scutel pale or with pale spots; abdomen black, apical segments spotted with white.
5. Scutel pale or with pale spots; abdomen tricolored.
6. Scutel pale; apex of abdomen and frequently the middle also, with yellow spots or rings.
7. Scutel pale; abdomen either spotted pale or with some of the segments entirely yellow, terminal segments entirely black.
8. Scutel pale; abdomen entirely red, or red and black.
9. Scutel black; abdomen entirely red or red and black.
10. Scutel black; abdomen tricolored.
11. Thorax and scutel red or painted with white; abdomen tricolored or bicolored; apex white.

Cynodon Dactylon, Creeping Panick-grass, was communicated by Mr. R. Kippist, who found it on the beach between Penzance and Marazion.






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STILPNUS DRYADUM.

ORDER Hymenoptera. FAM. Ichneumonidæ.

Type of the Genus, Stilpnus gagates *Grav.*

STILPNUS *Grav., Curt., Hal.*

Antennæ inserted between the eyes in front of the face, as long as the thorax, rather stout, slightly thickened towards the apex, pubescent and composed of 20 joints in the male and 16 in the female (1), basal joint robust ovate, 2nd small globose, 3rd generally the longest, slender, the 3 following rather longer than the remainder which are ovate-quadrate, the terminal joint longer and conical.

Labrum with the basal portion semicircular, coriaceous and ciliated, the centre membranous, ciliated and forming an elongate triangle, articulated at the middle (2).

Mandibles curved, acute and bifid at the apex (3).

Maxillæ terminated by 2 suborbicular pubescent lobes, the internal one with the cilia very short, the external one pilose at the apex. *Palpi* long and rather slender, composed of 5 hairy joints, nearly of equal length and subclavate, the 2nd dilated on the inside, 4th rather the shortest, 5th a little the longest and linear (4).

Mentum elongate obtrigonate. *Lip* distinct, hollow, pubescent and slightly emarginate. *Palpi* much shorter than the maxillary, pilose, 4-jointed, 1st and 2nd joints of equal length and rather stout, the former clavate, the latter subovate, 3rd the smallest, 4th a little the longest, cylindric oval (5).

Head *short transverse, face orbicular.* Eyes *rather prominent and oval.* Ocelli 3 *in triangle* (1*). Thorax *oblong, obovate, gibbous.* Scutellum *convex, semiovate.* Wings; *anterior with a large triangular stigma, a triangular marginal cell, not reaching the apex; areolet small, pentagonal and scarcely closed on the furthest side, the 2 posterior cells united* (9). Abdomen *slightly depressed, narrower than the thorax and somewhat linear or elliptical in the males* (6 ♂); *suborbicular and broader than the thorax in the females; petiole rather long and narrow, channelled and dilated posteriorly:* ovipositor *concealed.* Legs *more slender in the male than female:* tibiæ *a little dilated towards the apex and spurred:* tarsi 5-*jointed, basal joint the longest.* Claws *and* Pulvilli *distinct.*

DRYADUM *Haliday's MSS. Curtis's Guide, Gen.* 488. *n°* 289[a].

In the Cabinet of Mr. Haliday.

THIS genus, Mr. Haliday says, seems more allied to Hemiteles than to any of the other Ichneumonidæ, indeed sometimes they can only be distinguished by the areolet, or a little difference in the length of the aculeus. The males of Stilpnus

and of some species of Atractodes are also very similar. I have not heard of any of the species being bred from the pupa; and when my Guide was published, one only was known to inhabit these Islands, but since that period the following have been detected in England and Ireland; and I am indebted to A. H. Haliday, Esq. for specimens, as well as the loan of the example figured.

1. S. gagates *Grav. v.* 1. *p.* 667. *n.* 288.—*Curtis's Guide.*

Length $1\frac{2}{3}$ to 2 lines. Black, shining; antennæ often ferruginous beneath at the base; stigma and nervures brown, ochreous at the base; abdomen of the male sometimes with an ochreous band at the base of the second joint. Legs rufous; coxæ, especially the hind pair, generally black, tips of tarsi dusky.

June and August, Ireland, Mr. Haliday: I took females in a garden at St. John's Wood, the end of September, and I believe in May also; and another which was much larger at Rhennes in France, the beginning of June.

2. S. Pavoniæ *Scop.*—*Grav.* 1. 671. 289.—*Curt. Guide.*

Similar to No. 1. but the antennæ are ochreous at the base, and the legs are of a paler colour: I suspect it is merely a variety. Not uncommon in Ireland, from June to August. I have also taken it with the last.

3. S. dryadum *Hal.*—*Curt. Brit. Ent. pl.* 388.

Black, shining: antennæ straw-colour at the base, the first joint sometimes with a black spot on the upper side: wings with the stigma and nervures pale brown, yellowish at the base: abdomen in the male with a pale ochreous band at the anterior margin of the second and third segments; female with a broad ochreous stripe down the back of the second, third and fourth segments, a spot at the tip of the petiole (which has a channel down the middle), and the margin of the second segment pale ochreous. Legs ochraceous, tips of tarsi blackish.

Obs. Sometimes the abdomen of the female is entirely black, and this sex has only fourteen joints in the antennæ. Both sexes of this new species were taken on oak-trees in Galway, Ireland, by Mr. Haliday.

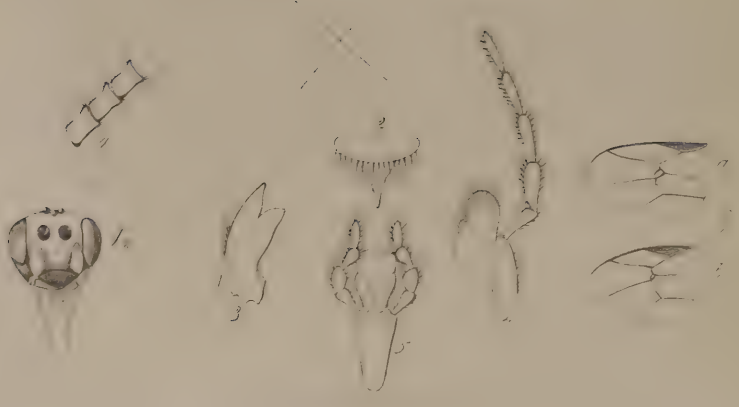
4. S. blandus *Grav.* 1. 672. 290.—*Curt. Guide.*

Female 2 lines long: black, shining; first and second joints of antennæ ochreous beneath; second and third segments of abdomen rufous; ovipositor exserted but very short: legs pale rufous, posterior coxæ black at the base.

Rare: taken by Mr. Haliday in Ireland.

The Plant is *Sherardia arvensis* (Little Field-madder).





644.

MESOLEPTUS WALTONI.

ORDER Hymenoptera. FAM. Ichneumonidæ.

Type of the Genus, Mesoleptus lævigatus *Grav.*

MESOLEPTUS *Grav., Curt.*—Ichneumon, Bassus, Cryptus *Fab.*

Antennæ almost as long as the body, slender, slightly thickened between the base and apex, inserted a little above the middle of the face, rather remote, composed of 30 joints and upwards, basal joint stout, 2nd somewhat cup-shaped, 3rd the longest, 4th oblong, the remainder decreasing in length to the apical joint which is ovate-conic (1).

Labrum concealed beneath the clypeus, transverse, the anterior margin convex and ciliated with long bristles, having a membranous pubescent trigonate lobe beneath (2).

Mandibles folding transversely, rather stout and cleft at the apex, forming 2 subtrigonate teeth (3).

Maxillæ terminated by an ovate bristly lobe. *Palpi* long pubescent pilose and composed of 5 nearly equal joints, basal joint elongated and clavate, 2nd a little longer and incrassated, 3rd as long but not so stout, the following rather more slender (4).

Mentum long, gradually tapering to the base. *Lip* long and broad. *Palpi* stout, longer than the lip, pubescent, bristly and 4-jointed, basal joint clavate, 2nd stout trapezate, 3rd pear-shaped, 4th subfusiform (5).

Head *transverse, face orbicular:* eyes *lateral ovate:* ocelli 3 *in a triangle on the crown of the head.* Trunk *long and narrow:* scutel *semiovate:* metathorax *elongated, with elevated lines and a small tooth on each side of the apex.* Abdomen *long depressed and clavate; the* petiole *long slender and tuberculated on the sides:* ovipositor *slightly exserted.* Wings *with an oblique somewhat ovate areolet* (9). Legs, *hinder the longest and stoutest:* coxæ *hinder long and stout:* tibiæ *spurred at the apex:* tarsi *long and 5-jointed, basal joint long, 4th and 5th very short:* claws *and* pulvilli *minute.*

Obs. *The dissections are taken from the species figured.*

WALTONI *Curt. Guide, Gen.* 491. 57^{b}.

Black; antennæ with the joints vertebrate, the anterior margins bristly (1), 3rd and a few succeeding joints fulvous; 2 vertical ovate spots below the antennæ, palpi and mandibles yellow, apex of the latter ferruginous (1* the face): petiole long slender and channelled, dilated at the apex which is ferruginous, 3 following joints rufous; areolet minute ovate oblique with a long peduncle (9 *b*), nervures costa and stigma brown; a portion of the latter ochreous; 4 anterior legs excepting the coxæ and trochanters testaceous, apical joint of tarsi brown, hinder tibiæ and tarsi brown, the former ferruginous at the base.

In the Author's Cabinet.

MESOLEPTUS is a group detached from *Tryphon* by Gravenhorst: it contains 70 or 80 species, and about 50 have been detected in this country. It is distinguished from *Tryphon* by its long and slender petiole, and the areolet is generally of a

Ann. and Mag. Nat. Hist. 6-353, 13 Oct.

different form; the labium is longer and not deeply notched, and the joints of the labial palpi appear to be differently proportioned. It must however be remembered that there are numerous modifications in this genus; in some species the antennæ are much shorter than the body, in others longer and capillary: the petiole varies much in the length, and is often considerably dilated at the apex; the abdomen is more or less clavate, the ovipositor rarely visible from above; the areolet is frequently trigonate and sometimes wanting, and the hinder legs are rarely thickened.

I shall give Gravenhorst's sections, although perhaps much more natural ones might be obtained from the proportions of the petiole, if not from the areolet and the metathorax.

1. *Scutellum and abdomen black.*

7[b]. ventralis *Curt.* *Male*: Antennæ shorter than the body: areolet small trigonate petiolated: black silky shining: trophi, 2 spots on the face, 2 basal joints of antennæ beneath, scapulæ and legs yellow; coxæ black, trochanters spotted with black, thighs and tibiæ ochreous, hinder thighs and inside of tibiæ at the apex piceous as well as the tarsi except at their base, anterior tarsi with the apex and base of each joint dusky; abdomen sublinear, yellow beneath except at the base and apex, 2 dots at the base of the 2nd and 3rd segments as well as the margin of the latter pellucid ferruginous. 4½ lines long.

2. *Scutellum with a pale spot; segments frequently with pale margins.*

10[b]. gracilipes *Curt.* Antennæ slender, longer than the body: areolet oblique-ovate: testaceous, slender, head black, face trophi and scapulars yellow, a spot on each side of the collar and scutel and also the metathorax brown: abdomen subfusiform and ferruginous, petiole black, 2nd segment and sides of the following piceous: tips of hinder thighs and tibiæ and of all the tarsi brown. 3 lines.

I took a male near Lanark in September.

3. *Scutellum pale or rufous; abdomen entirely rufous, or red and black.*

23[b]. speciosus *Curt.* Antennæ much longer than the body: areolet none: black, 2 basal joints of antennæ beneath, face, trophi, underside of thorax, legs, scapulæ, margin of collar, 2 hooked streaks on the thorax and scutel excepting the tip bright yellow; metathorax with a foveolet at the base: abdomen ovate-clavate, ferruginous, petiole black, broad at the apex, hinder legs ferruginous, coxæ and trochanters yellow, hinder tibiæ brown, their apex and tarsi black. 3¼ lines.

A male found in Coomb-wood the 7th of May.

4. *Scutellum black; abdomen rufous or red and black.*

57[b]. Waltoni *Curt. Brit. Ent. pl.* 644 ♂. This insect is remarkable for its curious antennæ, which resemble the vertebræ of some reptiles, and the areolet is exceedingly minute.

I have the pleasure of dedicating this new species to my friend John Walton, Esq., to whose exertions this work is greatly indebted for many of the rare and beautiful plants that have ornamented the recent volumes: three specimens were taken by the river Nidd at Knaresborough in June, and also in the neighbourhood of Settle in Yorkshire.

The Plant is *Dryas octopetala*, Mountain Avens, from Arncliff.


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C

399.

TRYPHON VARITARSUS.

Order Hymenoptera. Fam. Ichneumonidæ.

Type of the Genus, Ichneumon rutilator *Linn.*

Tryphon *Fall., Grav., Curt.*—Ichneumon *Linn., Fab.*—Cryptus & Bassus *Fab.*

Antennæ inserted in the centre of the face, approximating, as long as the body, fusiform, composed of numerous pubescent joints; basal joint robust oval, 2nd subglobose, 3rd ring-shaped, 4th long, 5th half the length, the remainder decreasing in length to the apical joint which is very minute and conical, (1, portions of the base and apex.)

Labrum transverse-fusiform, the edge ciliated with long bristles producing a trigonate coriaceous lobe beneath, elongated and attenuated at the apex (2).

Mandibles arched, bifid at the apex (3).

Maxillæ with an internal fleshy suborbicular lobe and an external one subovate and very pilose. *Palpi* very long, pubescent and pilose, 5-jointed, 2nd a little the longest and broadest, penultimate a little the shortest, terminal joint the slenderest (4).

Mentum oblong subovate. *Palpi* rather long, pubescent pilose and 4-jointed, basal and terminal joints of equal length, the former clavate, the latter subfusiform, 2nd and 3rd short, the former a little the broadest and shortest. *Lip* bifid or deeply emarginate (5).

Head *short transverse and orbicular, face flat.* Eyes *oval.* Ocelli 3 *in triangle.* Thorax *subglobose:* scutellum *rather small convex and subtrigonate:* postscutellum *channelled.* Abdomen *subsessile oblong clavate and convex, the* ovipositor *short but exserted* (6). Wings *pubescent, superior rather broad and truncated obliquely at the apex, areolet subrhomboidal with a pedicle above, the first recurrent nervure very much sinuated* (9). Legs; *hinder pair the longest.* Thighs; *posterior the stoutest.* Tibiæ *simple and spurred.* Tarsi *as long as the tibiæ; posterior not very thick 5-jointed, 4th joint minute.* Claws *simple.* Pulvilli *distinct.*

Obs. *The dissections are taken from* T. varitarsus ♀, *excepting the wing.*

Varitarsus *Grav. Ich. Eur. v. 2. p. 222. n.* 146.—*Curt. Guide, Gen.* 492. *n.* 146.

Black, shining, pubescent: antennæ fuscous, black at the base, ochreous beneath. Head punctured, face clothed with hoary pubescence; labrum ferruginous, mandibles yellow. Abdomen with 2nd and 3rd segments rufous. Wings iridescent and transparent, nervures and stigma brown, except at the base where they are pale yellow. Legs bright ochre, trochanters black, coxæ pale yellow, the posterior sometimes black at the base, as well as the tips of the thighs; tibiæ and tarsi of this pair black, the former with the middle and spurs white, the latter with the base of the joints whitish; in the other tarsi the apex is blackish.

In the Author's and other Cabinets.

Gravenhorst has described 143 species of Tryphon, and the following have been found in this country.

T. prærogator *L.*	T. erythrocerus *Gr.*	T. lateralis *Gr.*
T. compunctator *L.*	T. mesoxanthus *Gr.*	T. melanocerus *Gr.*
T. melancholicus *Gr.*	T. elongator *F.*	T. semicaligatus *Gr.*
T. lucidulus *Gr.*	T. sphærocephalus *Gr.*	T. insolens *Gr.*
T. aulicus *Gr.*	T. pastoralis *Gr.*	T. evolans *Gr.*
T. marginatorius *F.*	T. mitigosus *Gr.*	T. fulvilabris *Gr.*
T. tricolor *Gr.*	T. notatus *Gr.*	T. rutilator *Gr.*
T. varitarsus *Gr.*		

Mr. Haliday has discovered two new species, one *T. aurifluus* (the type of his proposed subgenus Cteniscus) occurs on Willows from July to Sept.; the other he has named *T. Curtisii*, and says, "The only specimen I have seen belongs to the same type, as well as *T. sexlituratus* and about three species besides in my cabinet."

For the following observations I am indebted to the same gentleman, and am sorry I can only give an abridgement of them. "*T. varitarsus* I have sent a specimen of, to illustrate Gravenhorst's note on this species: he errs in supposing it the effect of accident; 3 out of 4 specimens occur thus affected. I subjoin extracts from my notes on the subject, with a sketch of the larvæ (for such they are, and not eggs) in different stages. The Tryphons occur in August and Sept. on Willows and Ragwort, and I have found as many as 18 larvæ attached to one insect: at first they are all of a smooth pear-shaped and shining opaque waxy tint (fig. B); in a few days they appear as represented at C, which is the underside: at this stage its voracious powers develop themselves, and I find the oldest generally making a meal of his next neighbour, who is soon sucked to the skin. I observed two motions in the mouth, one an opening and shutting of the mandibles, the other a general dilatation and contraction of the membrane of the mouth. Beyond this they show little signs of life while attached to the oviduct, but on being removed, which is easily done without injuring them, the darker ones have a slight jerking motion."

Neither Mr. Haliday nor myself know the male of *T. varitarsus*, but all the females I have seen have had these nits attached to them; each appears to me to be an animal contained in a bladder which has a peduncle at the lower end (B), by which it is attached to the base of the oviduct (A); they are there nourished, but whether the animal ever leaves the sac I am not able to determine: I think it probable, since I found that the bladders attached to the upperside of the abdomen of a female *Dyticus marginalis* contained an Hydrachna or Limnochares, the drawings of which I have by me.

The Plant is *Spergula nodosa* (Knotted Spurrey).


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ANOMALON VESPARUM.

ORDER Hymenoptera. FAM. Ichneumonidæ *Lat.*, *Leach.*

Type of the Genus Ichneumon *lætatorius Fab.*

ANOMALON *Jurine.*—Ichneumon *Linn.*, *Fab.*, *Lat.*, *Panz.*—Bassus *Panz.*—Cryptus & Ophion *Fab.*

Antennæ approximating, inserted in front of the head sometimes above the middle, not longer or so long as the body, filiform, pilose, composed of 18 joints and upwards, basal joint the most robust, 2nd the smallest, 3rd the longest, terminal joint conical (fig. 1* a).

Labrum transverse-ovate, the sides attenuated, very pilose anteriorly (2).

Mandibles transverse when at rest, subtrigonate, bifid and acute at the extremity, pilose externally (3).

Maxillæ membranous, terminated by 2 dilated lobes, the inner one the smaller, the external one pilose. *Palpi* rather long, pilose, submembranous, 5-jointed, 2 first joints robust, nearly of equal length, the remainder slender, the 3rd being the longest, the 4th the shortest (4).

Mentum cup-shaped (5 a). *Palpi* rather long, pilose, robust, 4-jointed (b). *Labium* membranous, semicircular (c).

Head *transverse*, (1* *front view*). Eyes *lateral*. Ocelli 3 *in triangle*. Thorax *subovate, sometimes elongated*. Abdomen *with the basal joint forming a very short peduncle, angulated on the sides*. Ovipositor *short, scarcely exserted*. Wings, *superior with one marginal and 2 large submarginal cells, the little one wanting, and a large one between the disc and the posterior margin*. Legs, *anterior the shortest, posterior the longest*. Tibiæ *spurred*. Tarsi 5-*jointed, basal joint long*. Claws *simple*. Pulvilli *minute* (8 *a fore leg*).

Obs. *the dissections were made from* A. Vesparum.

VESPARUM *Nob.*

Black slightly but thickly punctured. Metathorax deeply sculptured. Abdomen very large and ovate, distinctly peduncled, rather glossy, pubescent towards the apex, the 2nd and 3rd joints dull ferruginous, fuscous in the centre. Wings pubescent, transparent, iridescent, nervures and stigma dark brown, a transverse nervure next the posterior margin nearly obliterated. Legs ferruginous, posterior the most robust. Tarsi, posterior entirely, the others fuscous only at their apex.

In the Cabinets of Mr. Wood and the Author.

ALTHOUGH Jurine fell into error by servilely following his favourite system, and by that means has collected together, as in the present instance, a mass of insects differing exceedingly in

Nouveau Jurine Gen. 455, Gen.

structure, still by selecting his type to draw our characters from, without reference to any of the others, we shall be able to make a sound genus of Anomalon.

Jurine's genus is distinguished from most of the Ichneumonidæ by the absence of the areolet, or second submarginal little cell, so common to this family, and from many others by the large cell joining the first submarginal one, which is imperfectly closed next the posterior margin in *A. Vesparum;* but it is not so in Jurine's type, *A. lætatorius.* There are a considerable number of species that agree with these insects in their wings; but we shall not venture to place them in the same genus at present, as they present other differences.

1. A. lætatorius *Fab. Panz.* 19. 19. *mas.*—100. 14. *fem.*—102. 18. *fem. var.*—Middle and end of July upon plants in meadows and gardens.

2. Vesparum *Nob.*

For specimens of this Anomalon (probably females), one of which is figured, we are indebted to the zeal and liberality of Mr. R. Wood of Manchester, who transmitted them with the nidus and following observations upon this singular insect. "In examining the combs of some Wasps' nests, (near the end of July probably,) in one of them I discovered many cells about half the length of those of the Wasps, and capped with wax. I put the comb into a glass jar, and the day following had the gratification of finding that three had eaten their way out of the cells. I think they were the liveliest insects I ever saw; yet on going to look at them again, I found that several Wasps had emerged from their cells and had actually eaten two of them. I then took out the comb, and destroyed the young Wasps by running a pin through them in their cells, and again put the comb into the jar; and in a few days three others came out. I fed them with honey, and they seemed to be very fond of it." Nothing has transpired since the comb has been in our possession; but we expect that those cells containing the Anomalon, will produce the other sex of the insect in the course of next summer. The cells occupied were in various situations, from two to four together: each cocoon was hexagonal, and filled the inside of the Wasp's cell; it was very tough and silky, round at the bottom and flat at the top. It is worthy of remark, that the cells of the Wasps containing the Anomalon were closed like the others; and upon opening them the exuvia of the Wasp's grub filled a space about one-third of the cell, from which we conclude that the eggs were deposited in the bodies of the larvæ and lived in them till they became nymphæ.

The plant is *Inula pulicaria* (Less Fleabane).



Pub. by J. Curtis, 1 Jul. 1828

ICHNEUMON ATROPOS.

ORDER Hymenoptera. FAM. Ichneumonidæ *Lat., Leach.*

Type of the Genus Ichneumon bidentorius *Fab.*

ICHNEUMON *Linn., Fab., Lat., Fall., Panz.*

Antennæ inserted between the eyes, in a cavity towards the middle of the face, long and setaceous, composed of 40 joints and upwards, basal joint robust, cylindric, truncated obliquely, 2nd very short, 3rd slender and the longest, the remainder decreasing in length to the apex (1* a).

Labrum transverse oval, a small portion only exserted, anterior margin ciliated, and producing from beneath a fleshy acuminated lobe (2).

Mandibles small, resting transversely, slightly bent and bifid, being notched below the apex (3).

Maxillæ short, terminated by a large oval ciliated lobe and a narrow fleshy one on the internal side. *Palpi* very long and slender, composed of 5 joints nearly of equal length, basal joint clavate, 2nd dilated subsecuriform, 3rd and 4th scarcely clavate, 5th very slender (4).

Mentum short ovate. *Labium* short hollow membranous. *Palpi* rather long slender and pubescent, 4-jointed, 3 first joints nearly of equal size, clavate truncate, 4th much longer and more slender (5).

Head *short, vertical, orbicular.* Eyes *lateral oblong* (1*, *head of I. Atropos viewed in front*). Ocelli 3 *in triangle.* Prothorax *short and small, metathorax cancellated.* Scutellum *rounded, sometimes gibbous.* Abdomen *alike in both sexes, oblong-conic or ovate, peduncle short, slender and arcuate.* Ovipositor *very short and not exserted.* Wings *with a pentagonal areolet.* Legs, *anterior the shortest, posterior the longest.* Coxæ *short and robust.* Tibiæ, *anterior producing* 1 *spine at the apex, the others* 2. Tarsi *long,* 5-*jointed, basal joint very long and notched internally at the base in the anterior pair, 4th joint small, 5th not longer than the* 2*nd.* Pulvilli *distinct.* Claws *simple* (8, *a fore leg*).

ATROPOS *Nob.*

Black, antennæ with the basal half orange; trophi and margin round the eyes ochreous, top of prothorax, a line before and another beneath each wing ochreous. Scutellum yellow. Abdomen with the 3 first joints rufous. Wings shining, aureous yellow, the posterior margins fuscous, nervures ferruginous. Leg ochreous excepting the coxæ, the apex of the posterior thighs and tibiæ which are black.

Obs. In some specimens the black in the antennæ extends nearer the base, the head and face are more yellow and the metathorax and the coxæ more mottled with ochre.

In the Cabinets of Mr. Davis and Mr. S. Sulivan.

FALLEN states that the true Ichneumons deposit their eggs in larvæ that feed on the leaves of trees, and in pupæ which lie

near the surface of the earth; it appears to me that they prefer naked caterpillars, and probably puncture them after they have descended into the earth, but before they have changed into chrysalides.

The following list of British species belonging to this numerous genus, incomplete as it is, will enable any one to recognize those insects which belong to this particular group; and manuscript names without descriptions would only be an incumbrance, since Professor Gravenhorst is about to publish a Monograph upon the family.

1. I. nigratorius *Fab.*—e. June, near Covehithe, Suffolk.
2. annulator *Linn.*
3. comitator *Linn.*—*Panz.* 71. 14.
4. nigrator *Fab.*
5. narrator *Fab.*
6. sputator *Fab.*—*Panz.* 19. 20.
7. nigratorius *Fab.*—e. June, near Covehithe, Suffolk.
8. molitorius *Linn.*—*Panz.* 19. 16.
9. moratorius *Fab.*
10. oratorius *Fab.*—*Panz.* 80. 10.
11. deliratorius *Linn.*
12. pedatorius *Fab.*—*Panz.* 71. 12.
13. castigator *Fab.*
14. lutorius *Fab.*—m. July, flying about Sallows at Whittlesea Mere.
15. pisorius *Fab.*—*Schæf. El. t.* 12. *f.* 1.
16. fusorius *Linn.*
17. Atropos. *Curt. Brit. Ent.* 234.
18. sugillatorius *Linn.*—*Schæf. Icon. t.* 84. *f.* 9.
19. infractorius *Linn.*—*Panz.* 78. 9.
20. vaginatorius *Linn.*—*Panz.* 79. 8.—August and September. Umbellate flowers.
21. ambulatorius *Fab.*
22. occisorius *Fab.*—*Panz.* 78. 10.
23. negatorius *Fab.*—ornatorius. *Panz.* 73. 15.
24. fasciatorius *Fab.*—nugatorius. *Panz.* 80. 12.
25. bidentorius *Fab.*—desertorius. *Panz.* 45. 15.—e. June and b. August.
26. luctatorius *Linn.*—*Schæf. Icon. t.* 264. *f.* 6.—m. August, Dover.
27. similatorius *Fab.*

I. Atropos has been bred from the caterpillar of *Acherontia Atropos* (*pl.* 147), by Miss Giraud of Faversham, Kent; the specimen figured from Mr. Sulivan's cabinet was taken at Rochester by Professor Henslow; and Mr. Davis took his the end of July in a lane leading to Darent Wood.

For specimens of *Juncus liniger*, With., *Luzula congesta*, Forst. (Flaxen Rush), I am indebted to Mr. Charlwood.



ALOMYA VICTOR.

Order Hymenoptera. Fam. Ichneumonidæ *Lat.*, *Leach.*

Type of the Genus Ichneumon debellator *Fab.*

Alomya *Panz.*, *Fallen.*—Cryptus *Fab.*—Ichneumon *Linn.*, *Fab.*, *Lat.*, *Jur.*

Antennæ inserted below the centre of the face in deep foveæ, approximating, subfiliform, convolute, pubescent, shorter than the head and thorax, composed of upwards of 30 joints, basal joint robust, 2nd small transverse, remainder more or less transverse, excepting the last, which is conic (fig. 1 a).

Labrum obtrigonate, rounded and ciliated anteriorly (2).

Mandibles large, strong, bent, bifid (3).

Maxillæ small membranous, with 2 lobes, external extending beyond the internal and ciliated. *Palpi* long pubescent, 5-jointed, basal joint the longest, 2nd robust, 3 following of nearly equal length and more slender (4).

Mentum elongate trigonate (5 a). *Palpi* long, pubescent, composed of 4 joints of nearly equal length, of which the 1st and 2nd are the most robust (b). *Lip* very short and obscure (c).

Clypeus *broad short.* Head *orbicular, cheeks projecting.* Eyes *small ovate, placed in the middle of each side.* Ocelli 3 (1, *front view of head*). Thorax *elongate ovate.* Metathorax *not cancellated, rounded with a spiracle on each side.* Abdomen *elongated, ovate, convex, petiole short slender incurved.* Oviduct *not exserted?* Wings *shorter than the body, the 2nd submarginal, cell small quinquangular.* Legs *short, posterior the longest.* Coxæ *anterior long.* Thighs *short robust.* Tibiæ, 4 *anterior very short, 1st pair having one spine at the extremity, the remainder* 2. Tarsi *much longer than the tibiæ, 5-jointed, basal joint the longest, 4th the shortest.* Claws *simple.* Pulvilli *distinct* (8, *a fore leg*).

Victor *nobis.*

Black, shining, punctured, slightly pubescent. Antennæ ferruginous, 1st and 2nd joints black, terminal portion fuscous. Abdomen ferruginous, the 2 last joints and the posterior margin of the antepenultimate black. Wings pubescent, slightly iridescent, stained fuscous, nervures brown, stigma ferruginous. Trochanters and thighs ferruginous at the apex. Tibiæ and tarsi ferruginous, the former pale in the middle.

In the Cabinet of the Author.

The vast number of species contained in *Ichneumonidæ*, together with the difficulty of seizing distinctive characters, has either caused this family to be totally neglected or but imperfectly understood in most countries, but in none more so than in our own, where the Coleoptera and Lepidoptera, with the exception of the Tenthredoes and Bees, have entirely engaged the attention of the entomologist till within the last few years; by which means not less than 600 species have been confused under the title of Ichneumon, instead of taking advantage of the improvements suggested by our neighbours, which, however imperfect, must form the basis for a more complete division and natural arrangement of this family.

Had Fabricius, who first divided the *Ichneumonidæ* into genera, done it with that care and attention which so difficult a task required, there is no doubt but Latreille would have gone further than he has done into the investigation of them; but the Fabrician system is so perfectly artificial, that the author of it himself could not follow it without making "confusion worse confounded," as is evident from a slight view of the genera in his last work.

Difficult as the task is, and unequal as we must acknowledge ourselves to perform it, we can only promise to lend our aid by separating groups as opportunities may offer, thereby lessening the mass that at present is nearly unmanageable, which will we hope enable those, who have better opportunities and more leisure than ourselves for studying this family, to accomplish an undertaking so absolutely necessary to a knowledge of the Hymenoptera.

Alomya was first established by Panzer, and has been adopted by Fallen: yet we are so imperfectly acquainted with the sexes, that Jurine and Fallen are at issue respecting them: there are, however, characters which are so evident, that we can recognize the genus at first sight, viz. the comparatively short wings, the long and convex body, the very short thighs and tibiæ, the globose head, and the short and curled antennæ, composed of fewer joints than in most of the genera.

These insects do not appear to fly much; they are generally found running amongst moss and grass, for which purpose their short and strong legs are well adapted. *A. debellator* has been found in Norfolk. *A. victor* I found last summer near Dunkeld; its red petiole distinguishes it from the former insect, which has a black one. We have 2 or 3 other species that are unnamed.

The plant figured, *Trientalis europæa* (Chickweed Wintergreen,) was found at the same time.


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668.

CRYPTUS BELLOSUS.

The Odynerus Ichneumon.

ORDER Hymenoptera. FAM. Ichneumonidæ.

Type of the Genus, Cryptus viduatorius *Fab.*

CRYPTUS *Fab., Fall., Grav., Curt.*—Ichneumon *Fab.*

Antennæ inserted in the middle of the face, contiguous, often as long as the body, composed of numerous joints, stout and setaceous in the male, the joints gradually decreasing in length from the 4th; slender and curved in the female, basal joint robust and oval, 2nd and 3rd short, 4th long, the remainder decreasing in length.

Labrum nearly concealed under the clypeus, subtrigonate and ciliated with longish hairs, with an elongate-trigonate membranous lobe at the centre (2).

Mandibles short, crossing, rather thick, curved, bifid at the apex (3).

Maxillæ terminated by a rounded pubescent lobe and a smaller inner one. *Palpi* long slender pubescent and 5-jointed, basal joint the shortest, clavate, 2nd long and rather stout, clavate, 3rd the longest, 4th and 5th not longer than the 2nd and slender, especially the 5th (4).

Mentum elongate-ovate, the angles excised to receive the *Palpi*, which are pubescent and 4-jointed, basal joint clavate, 2nd and 3rd short obtrigonate, 4th the longest, stoutest at the base and attenuated to the apex. *Lip* tolerably long, concave and emarginate (5).

Head *transverse*, face *concave, orbicular-trigonate* (1*) *:* eyes *lateral, vertical :* ocelli 3 *in triangle at the base of the head.* Thorax *elongate-ovate ; collar narrow :* scutel *semiovate :* metathorax *with a tooth at each hinder angle.* Abdomen *long and slender in the male, subfusiform, petiole clavate* (A) *: stouter and more ovate in the female, petiole long, depressed and very much dilated at the apex :* ovipositor *exserted, often as long as the abdomen.* Wings *ample, superior with a quinquangular areolet, marginal cell lanceolate.* Legs : *anterior the shortest, hinder long and stout :* thighs, *hinder the stoutest :* tibiæ *spurred at the apex :* tarsi 5-*jointed, basal joint the longest :* claws *and* pulvilli *small.*

Obs. *The dissections are from* Ichneumon obscurus *Gmel.? excepting fig.* A, *which is the abdomen of* I. titillator *Linn.?*

BELLOSUS *Curt. Guide, Gen.* 499.

Female slate black, thickly and delicately punctured, 10th, 11th, and 12th joints of antennæ white above : thorax deep red ; scutel white, the surrounding sutures blackish ; metathorax globose, scarcely tuberculated at the angles, with 2 transverse sutures : base of abdomen more coarsely punctured; petiole with a minute tooth on each side, 2 apical segments white, as well as the margins of the others beneath when alive : anterior tibiæ and tips of thighs ochreous : wings iridescent, the posterior margins fuscous, stigma and nervures piceous.

In the Author's Cabinet.

There are fifty described species of this extensive genus inhabiting Great Britain which are recorded in the "Guide," and I have nearly twenty more in my own Cabinet which I cannot identify with any of Gravenhorst's. It is therefore impossible to do more here than to give his sections with an English type of each, referring to the Guide for a complete list of the species.

1. *Scutellum and abdomen black.*

21. moschator *Fab.—Grav.* 2. 451. 21.

2. *Scutellum pale, abdomen black.*

40. viduatorius *Fab.—Grav.* 2. 476. 40.

3. *Scutellum pale, abdomen with pale rings.*

No specimen has yet been discovered in Britain of this section.

4. *Scutellum with a pale spot; abdomen rufous or red and black.*

82. albatorius *Vill.—Grav.* 2. 536. 82.

5. *Scutellum black; abdomen red or red and black.*

91. obscurus *Gmel.—Grav.* 2. 548. 91.

6. *Scutellum and thorax partly rufous; abdomen red and black.*

136. minutorius *Fab.—Grav.* 2. 625. 136.

7. *Scutellum white, thorax red, abdomen black.*

144^{b}. bellosus *Curt. Brit. Ent. pl.* 668. ♀. The ♂ is unknown.

Two females of this beautiful insect I bred the end of last June from some dead bramble stalks that were given to me by Mr. F. Smith, with the expectation of obtaining from them the *Osmia leucomelana*, not one of which however made its appearance, but to my surprise and gratification these Crypti, and a few days after some females of *Odynerus* (*Epipone*) *lævipes*, described by Mr. Shuckard in Loudon's Magazine of Nat. Hist. issued from the sticks. The Crypti were exceedingly vivacious, not a joint of their antennæ or legs, or a segment of their abdomen being at rest, and they resisted the fumes of sulphur under a glass longer than any other insect that has come under my observation, whilst, on the contrary, the Odyneri were very sluggish, not attempting to unfold their wings, and were easily deprived of life.

For specimens of *Valeriana* (*Fedia*) *auricula*, gathered near Cowes in the Isle of Wight, I am indebted to Dr. Bromfield.



AGRIOTYPUS ARMATUS.

ORDER Hymenoptera. FAM. Ichneumonidæ.

Type of the Genus Agriotypus armatus *Walk.*

AGRIOTYPUS *Walk.—Curt. Guide, Gen.* 503ª. (1)

Antennæ inserted towards the middle of the face, remote, filiform, very hairy, rather long in the male and composed of 31 joints, basal joint the stoutest, ovate, 2nd short subovate, 3rd the longest, 4th not longer than the 1st, remainder decreasing in length to the apex, apical joints short and oblong, the terminal one conical (1, portions of the base and apex). Short in the female and composed of 24 joints.

Labrum nearly concealed by the clypeus, somewhat orbicular, anterior margin thickened, producing a few long bristles; tongue-shaped, pubescent, with a lobe inserted beneath and extending considerably beyond the labrum (2).

Mandibles exserted, meeting at the apex and crossing, broadest at the base, curved, with an obtuse tooth below the apex which is acute, ciliated externally (3).

Maxillæ forming a large rounded lobe, with another external one of equal size and ciliated at the apex. *Palpi* very long, pubescent pilose and 5-jointed, 2nd joint the stoutest, 3rd the longest, 4th and 5th rather slender, the latter the shortest (4).

Mentum attenuated to the base, truncated before. *Palpi* attached to the anterior angles of the mentum, rather long, pubescent, pilose and 4-jointed; 3 first joints short, nearly of equal length, subclavate, 2nd and 3rd slightly dilated, 4th long slender and conical at the apex. *Lip* large hollow and very pubescent (5).

Head *short transverse, face somewhat obovate.* Eyes *rather small but prominent.* Ocelli 3 *in triangle* (1 ♀, *front view of head*). Thorax *narrow:* scutellum *elongate-trigonate, the sides reflexed, terminated by a porrected spine:* postscutellum *with 6 longitudinal elevated lines.* Abdomen *short and oval, attached by a long stout arched petiole, broader than the thorax in the male, and much more so in the female, the basal joint very large in the female, with 2 indistinct transverse sutures, the apex terminated by two small appendages in the male:* ovipositor *short and exserted from beneath.* Wings, superior *with an oval stigma and a small triangular marginal cell, areolet none* (9); inferior *with distinct nervures.* Legs *all long and slender, hinder the longest.* Tibiæ *all long, spurred at the apex.* Tarsi *long, basal joint very long, 4th the shortest, apical joint as long as the 2nd.* Claws *and* Pulvilli *rather large:* (8, *apex of tibia and the tarsus*).

ARMATUS *Walker's MSS.*

In the Cabinets of Mr. Walker and the Author.

(1) The situation of the genus is thus indicated that it may be recorded in the Guide; and whenever it is reprinted, all new or additional genera will be inserted in their proper places, with letters attached to the numbers, that those of the first edition may not be disturbed.

In the last Number I had the pleasure of publishing an extraordinary novelty belonging to the order Strepsiptera, and I am happy to commence a new volume with an equally fine species of the order Hymenoptera.

This curious insect is considerably like Helorus and some of the Proctotrupidæ at first sight, and not unlike some of the Formicidæ; and the habit as well as the sculpture of the thorax remind us, at a casual glance, of the genus Chlorion;—on examining the mouth however, and wings, it will be found to be entirely different. It is undoubtedly one of the Ichneumonidæ, and bears considerable resemblance to Hemiteles, but it has no areolet in the superior wings (1).

For specimens of this fine nondescript I am indebted to Henry Walker, Esq., who took them on the Clyde, near Lanark; they were accompanied by the following remarks.

"I observed the males at the end of May and beginning of June, on days when the sun shone bright, skimming over the surface of the water, and alighting on humid moss-covered stones. Towards the close of the day I subsequently detected two females reposing on the same rocks, apparently in a dormant state."

A. armatus *Walk.—Curtis Brit. Ent. pl.* 389. *female.*

Male, black shining, thickly clothed with very short yellowish pubescence, minutely punctured; scutellum with the tip of the spine ochreous, postscutellum and petiole dull, the latter thickly punctured, with two elevated lines down the back, and one on each side. Wings transparent, obscurely clouded with pale brown, the stigma and nervures piceous. *Female* more robust; the antennæ are much shorter, similar in colour and sculpture, the spine of the scutellum is entirely black; the wings, especially the superior, are stained yellow, clouded with rich brown forming three fasciæ, the two first united at the interior margin, the third running obliquely from the stigma, the apex of the same colour, but rather paler.

They vary exceedingly in size, some being only half as large as others.

The Plant is *Scutellaria galericulata* (Common Skull-cap).

(1) Since the above was written, I have received a specimen sent by me to Mons. Latreille for his inspection. He says: "The antennæ, the cibarian organs, and partly the disposition of the cells of the wings, rank it with the Ichneumonidæ; but by the form of the abdomen and the radial cell of the wings it appears to me to approach the *Oxyuri*, especially my genus *Helorus*;—in a word, it seems to unite the Ichneumonidæ with the Oxyuri. The ovipositor (terebra), or rather the extremity of the abdomen, appears, from the specimen that you have transmitted to me, more analogous to that of the latter than the former."


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536.

PEZOMACHUS HOPEI.

ORDER Hymenoptera. FAM. Ichneumonidæ.

Type of the Genus, Mutilla acarorum *Linn.*

PEZOMACHUS *Grav., Curt.*—Gelis *Thun.*?—Cryptus *Fab.*—Ichneumon *Fab., Oliv., Panz.*—Mutilla *Linn., Schr.*

Antennæ scarcely so long as the body, subfiliform, pubescent, composed of 19 joints in some females, basal joint the stoutest and oval, 2nd the smallest, subglobose, 3rd the longest, remainder decreasing in length but becoming gradually thicker and quadrate beyond the middle, terminal joint elongate-conic (1 portions of the base and apex).

Labrum inserted under the clypeus, transverse, somewhat semicircular, with a few bristles on the margin, and a membranous pubescent triangular lobe beneath, a little attenuated at the apex (2).

Mandibles short, elongate-trigonate, bifid at the apex (3).

Maxillæ terminated by 2 rounded lobes, the internal one ciliated with very short hairs, the other larger and pilose. *Palpi* long, pilose and 5-jointed, basal joint clavate, 2nd and 3rd a little longer, the former the stoutest, 4th a little the shortest, 5th the size of the 3rd, subfusiform (4).

Mentum elongate obovate. *Lip* small, cordate and striated. *Palpi* rather short, pilose and 4-jointed, first 2 joints obtrigonate, 3rd smaller subglobose, 4th the longest and subconic (5).

Head *transverse, broader than the thorax* (1 * *the face*) *:* eyes *lateral prominent and ovate, coarsely granulated:* ocelli 3 *in triangle on the crown of the head.* Thorax *long and narrow, with a suture across the middle in the apterous females* (T)*;* collar *very small in the winged species, and the* scutellum *distinct.* Wings *often wanting, always imperfect, shorter than the thorax, bristly, nervures strong, superior with only* 2 *basal cells* (9). Abdomen *ovate, not longer than the head and thorax, but broader in the females, with* 6 *joints visible, attached by a peduncle, sometimes funnel-shaped* (T *a*)*:* ovipositor *stout, shorter than the abdomen.* Legs *appearing long, especially the hinder pair:* tibiæ, *anterior with a spine, the others spurred at the apex:* tarsi 5*-jointed, basal joint the longest,* 4*th sometimes cordate* (8, *a fore leg*).

The dissections were drawn from *I. vagans* Oliv.

HOPEI *Grav.—Curt. Guide, Gen.* 504. 291[b].

Female ferruginous red, clothed with very fine short pubescence; head black, antennæ black above, excepting the first five joints which are entirely rufous, and the tip of the 7th and 3 following are white above: wings shorter than the thorax, having no areolet; scutellum distinct, metathorax with a small tooth at each angle; hinder margin of the 4th abdominal segment and the following black, the 6th bearing a broad white band above: ovipositor black, castaneous at the apex; tips of hinder thighs and tibiæ black.

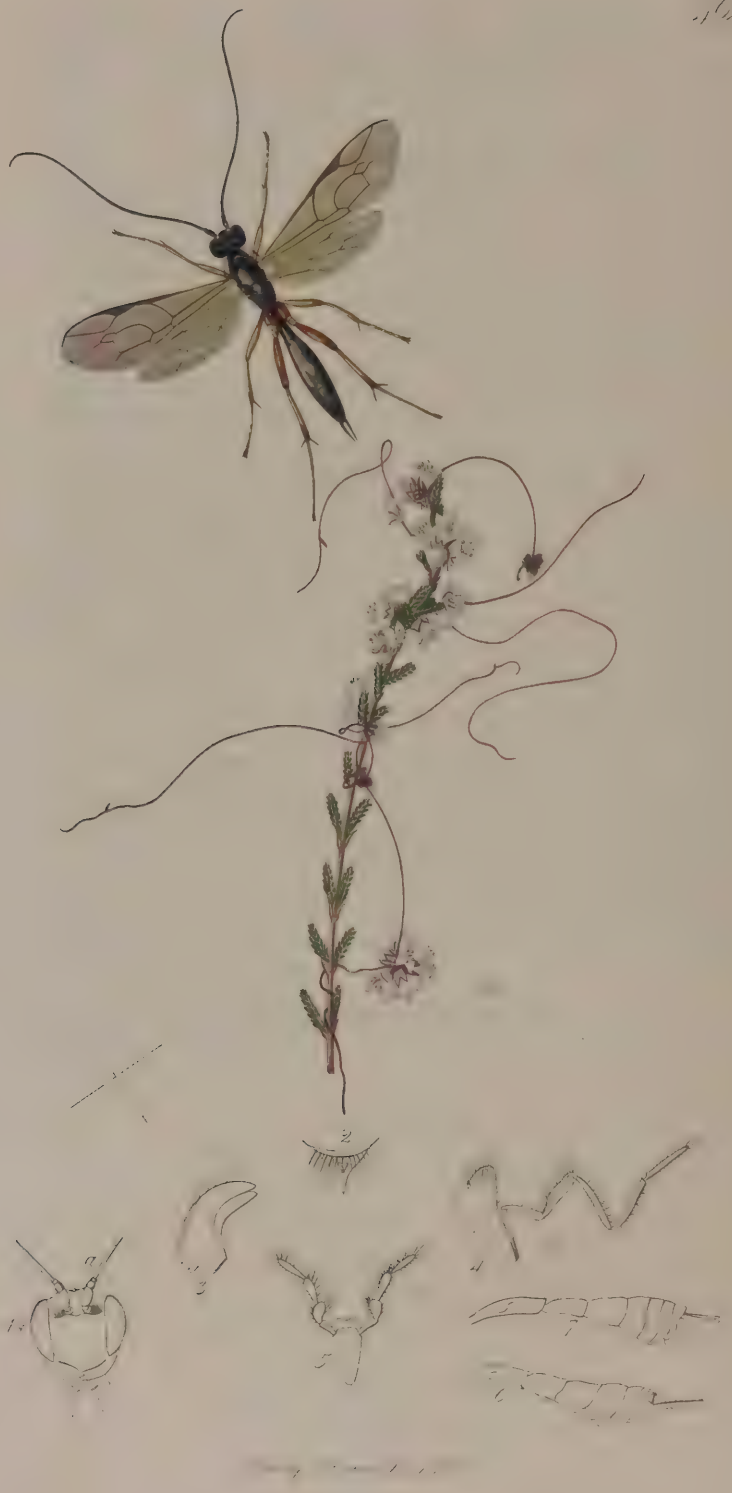
In the Author's and other Cabinets.

Pezomachus is a remarkable group of the Crypti, being either apterous or having only rudimentary wings. From Gravenhorst's description and figure of one of these, it appears that they vary in their neuration, and the genus therefore requires further investigation in order to form at least natural sections, and from the very great dissimilarity in the structure of the thorax and the form of the penultimate joint of the tarsi, two genera probably might be established, in which case Thunberg's name of Gelis would very well apply to one of them.

The Pezomachi are equally curious in their œconomy, for although like the rest of the Ichneumonidæ they are parasitic, they do not seem to be attached to any particular group, if the statements made be correct. I have heard of their being produced from Spiders' eggs and from the larvæ of *Curculio plantaginis*, and Linnæus says one species in its perfect state lives upon Acari. The two that I have bred, *P. festinans* Fab. and *P. vagans* Oliv., hatched from the cocoons of two species of Microgaster, and with the latter appeared another parasite, a species of Hemiteles, and Mr. Haliday in the Ent. Mag. mentions two, so that 3 or 4 different Ichneumonidæ were produced from the same cocoons. The most remarkable fact however relating to these little animals is the great apparent excess of females; I have in my own cabinet upwards of 20 species, and only know the male of one (*P. festinans*), and Mr. Haliday says he has seen hundreds of the female of *P. fasciatus*, yet he never met with a male.

For a list of the species I must refer to the Guide. They are found in spring, summer and autumn where reeds abound, in sandy districts, in the flowers of Syngenesious plants, amongst grass &c., and in winter in moss and under stones. The species figured I swept into my net last August, off some bushes of Sweet Gale in the Isle of Arran, as we were ascending Goatfeld, and I had met with it twice before in Norfolk: the male has not been discovered.

The Plant is *Urtica pilulifera* (Roman Nettle), from Lowestoft Denes, Suffolk.



464.

MESOCHORUS SERICANS.

ORDER Hymenoptera. FAM. Ichneumonidæ.

Type of the Genus, Mesochorus splendidulus *Grav.*

MESOCHORUS *Grav., Curt.*

Antennæ as long as the insect, slender, filiform and pubescent, inserted in a cavity towards the middle of the face, composed of about 40 joints, basal joint the stoutest, 2nd ovate, 3rd minute, 4th long, the remainder rapidly decreasing in length, the apical joints small and ovate (1**a*).

Labrum small, semicircular and ciliated with bristles, with a fleshy pubescent, triangular lobe somewhat acuminated at the apex (2).

Mandibles small, curved, bifid at the apex (3).

Maxillæ terminated by two rounded lobes, the superior very pilose. *Palpi* very long, pilose and 5-jointed, basal joint clavate, a little the shortest, 2nd dilated internally, the remainder slender and linear, the 3rd being the longest (4).

Mentum somewhat obovate. *Lip* small, semicylindric, slightly emarginate and pubescent. *Palpi* rather long, pilose and 4-jointed, 1st and 2nd joints nearly of equal length, the latter dilated internally, 3rd and 4th longer and clavate, the latter the slenderest (5).

Head *short and transverse, face orbicular* (1*) *:* eyes *elliptical :* ocelli 3. Thorax *not broader than the head, gibbose, ovate :* scutellum *subtriangular or semiovate.* Abdomen *attached by rather a long petiole, fusiform slightly convex clavate in profile, scarcely so broad as the thorax, furnished at the apex in the male with* 2 *rigid and attenuated spines* (7) *:* ovipositor *exserted rather stout and longer than the style in the male* (6). Wings, superior, *with the stigma rather small, the marginal cell not large and conical, areolet large and rhomboidal with a short pedicle :* inferior *sometimes with the lower nervure furcate towards the anal angle.* Legs *not short.* Thighs, *posterior the stoutest.* Tibiæ *spurred at the apex.* Tarsi 5*-jointed, basal joint the longest.* Claws *and* Pulvilli *small.*

SERICANS *Haliday's MSS.—Curt. Guide, Gen.* 508.

In the Cabinet of Mr. Haliday.

THE large rhomboidal areolet, connected with the lower nervure of the marginal cell by a short pedicel, and the large curved internal cubital cell, are good characters to identify the Mesochori; and the males of this pretty genus are distinguished by two slender spines at the apex of the abdomen.

1 mâle de Seville 6. 395 23 ep.

Mr. Haliday has observed to me, in a letter, that this genus affords two strongly-marked divisions,—

I. With the interior brachial cell of the lower wings emitting a single nervure from its inner angle.

1. M. Tipularius *Grav.* 2. 964. 332.—*Curt. Guide*, 508. 332.
In larch plantations, Galway, Mr. Haliday.

2. M. splendidulus *Grav.*—Very rare at Belfast, but common in Galway.

3. M. olerum *Hal.*—Length 1¾ line. Black, lower part of face, orbit of eyes, posterior margin of 2nd segment of the abdomen, a spot at the base of the 3rd, and the legs, ochreous: tips of posterior tibiæ and tarsi fuscous.
Found on turnips by Mr. Haliday.

4. M. fulgurans *Hal.*—Length 3¼ lines. Ochreous, tips of antennæ and eyes dark: abdomen ferruginous-ochre: stigma pallid.
Taken in shady ravines in Ireland.

5. M. basalis *Curt.*—Length 3 lines. Ochreous; eyes, crown of head, 3 spots on the thorax, postscutellum, base of abdomen (excepting the posterior margin of the 2nd segment), and a spot on each side the 3rd segment, black: base and tips of posterior tibiæ black.
New Forest, on stumps of trees in shady groves, beginning of June.

6. M. Sylvarum *Hal.*—Length 3 lines. Black, orbit of eyes and mouth pale yellow, mesothorax and scutellum ferruginous, the former with 3 black spots, and a brownish spot sometimes on the back of the abdomen. Legs ochreous, tips of tarsi fuscous.
Abundant on trees in hedge-rows, particularly ash and oak, Mr. Haliday.

II. Interior brachial cell of the lower wings emitting 2 nervures from its inner angle.

7. M. sericans *Hal.*—*Curt. Brit. Ent. pl.* 464. ♂.
Black, with a dull blueish bloom, and clothed with pale pubescence; face and mouth yellow, underside of antennæ ochreous-brown, an ochreous dot at the angles of the basal joint of the body, and a scutiform spot on the margin of the 2nd, and the base of the 3rd of the same colour; the posterior margin of the latter and the tip of the abdomen ochreous: wings stained yellow, the nervures and stigma pale brown: legs ochreous, thighs reddish, tips of the posterior and of their tibiæ blackish; posterior tarsi brown, the others brown only at their tips.
Taken by Mr. Haliday, I believe, near Belfast.

8. M. Splenium *Curt.*—Length 2⅔ lines. *Male* pale ochreous; head black, face yellowish-white, antennæ fuscous, except at the base; alitrunk black, scutellum bright ochre; abdomen with the base of the 1st joint and sides of 2nd black, sides of the remainder, and a considerable portion of the apex and the styles, brown: centre of stigma pale ochre; nervures, tips of posterior tibiæ, pulvilli and claws brown.
This pretty species I took in the New Forest.

Mr. Haliday has at least twenty-six very distinct species of this genus.

The Plant is *Cuscuta Epithymum* (Less Dodder).



Published by J. Curtis, June 1, 1830.

LAMPRONOTA CRENICORNIS.

ORDER Hymenoptera. FAM. Ichneumonidæ.

Type of the Genus, Ichneumon setosus *Four.*

LAMPRONOTA *Curt.*—Lissonota *Grav., Curt.*—Ichneumon *Fab. &c.*

Antennæ inserted near the middle of the face, not approximating, as long as the body, filiform, composed of about 40 joints, basal joint the stoutest obovate, 2nd subglobose, 3rd the longest, the remainder decreasing in length to the apical joint which is a little longer and conical.

Labrum; superior portion transverse conic, furnished with a rounded and ciliated membrane producing a tongue-shaped lobe (2).

Mandibles rather small, slightly pubescent, subtrigonate and bifid, being terminated by two nearly equal teeth (3).

Maxillæ hairy outside, terminated by an oblique oval very pubescent lobe, with an equally large and rather fleshy oblong one on the inside. *Palpi* very long, pilose and 5-jointed, basal and 2nd joints rather robust, subclavate, the latter rather the longest and convex on the inside, the remainder slender; 3rd the longest, 4th about the length of the 2nd, the 5th a little shorter (4).

Mentum pilose, oblong, slightly narrowed towards the base. *Palpi* longer than the mentum, to the anterior angles of which they are attached, pilose and 4-jointed, basal joint clavate, 3rd rather shorter and broader, subtrigonate, 3rd clavate, 4th slender, elongate-conic. *Lip* short, deeply notched in the centre (5).

Head *transverse and short.* Eyes *oval and prominent.* Ocelli 3 *in triangle.* Thorax *gibbose.* Scutellum *suborbicular or triangular:* postscutellum *rather large and convex, with a faint channel.* Abdomen *narrowed at the base, rather elongated, somewhat cylindrical, smooth and shining.* Ovipositor *as long or longer than the body, the apical joints are not cleft but conceal the aperture.* Wings *generally with a triangular areolet sometimes petiolated* (9), *in a few it is wanting.* Legs *rather slender, anterior the shortest.* Coxæ *large.* Tibiæ *slender and spurred.* Tarsi 5-*jointed, basal joint the longest.* Claws *and* Pulvilli *short.*

Obs. *The trophi and wing were drawn from* L. impressor *Grav.*

CRENICORNIS *Hal. MSS.—Curtis's Guide, Gen.* 511.

Black, glossy, slightly pubescent: antennæ simple in the female, geniculated towards the middle in the male, the 5th joint notched on the outside towards the apex and the 6th at the base (1 ♂): head finely, thorax more coarsely punctured: postscutellum and base of the abdomen rugose: ovipositor scarcely so long as the body (6). Wings rich yellowish, iridescent; areolet none, stigma and nervures piceous. Legs reddish ochre, posterior tibiæ and tarsi and the tips of the other tarsi brown.

In the Cabinets of Mr. Haliday and the Author.

Schœnherr having employed Lissonota to designate a group of the Cerambycidæ, it becomes necessary to supersede Gravenhorst's name, and to assist the memory I have used a similar word.

Lampronota is a subgenus of Pimpla, and is best distinguished by the smoothness of the abdominal segments.

The following appear to be British species.

14*. L. crenicornis *Hal.—Curt. Brit. Ent. pl.* 407. *male.*

Mr. Haliday says "it was found from the early part of August to the middle of September, and another species with similar antennæ of the same figure, &c. occurred in a pine-wood: it differs in having the coxæ black, the hind tibiæ and tarsi dusky, and it is larger."

I am indebted to Mr. Haliday for specimens of the remarkable insect figured, and he considers it to be almost osculant between Lampronota and Phytodietus; from the former it differs only in the cleft abdomen of the female and the deep thoracic sutures.

14. L. setosa *Four.—Grav. v.* 3. *p.* 35. *n.* 14.—*Shæff. Icon. t.* 50. *f.* 5.

18. L. sulphurifera *Gr.* 39. 18.

20^{b}. L. suborbitalis *Gr.* 42. 20^{b}.

22. L. agnata? *Gr.* 44. 22.

23. L. catenator *Schæff. t.* 20. *f.* 10.—lineolaris *Gmel.*—I took a female in Scotland.

25. L. hortorum? *Gr.* 47. 25.—ventrifascius *Schr. var.*—Scotland and Dover in July.

27. L. impressor *Gr.* 50. 27.—October, Isle of Wight.

28. L. segmentator *Fab.—Gr.* 52. 28.

33. L. maculatoria *Fab.—Gr.* 60. 33.

37. L. pectoralis *Gr.* 69. 37.

47. L. perspicillator? *Gr.* 86. 47.—Middle of August; 1 male and 3 females at the top of the cliff, near Wall-pan Chine, Isle of Wight.

50. L. verberans? *Gr.* 93. 50.—I took a female the end of August upon a post near the beach, Portsmouth.

54. L. murina? *Gr.* 99. 54.

57. L. accusator *Fab.—Gr.* 101. 57.

58. L. cylindrator *Vill.—Gr.* 102. 58.

60. L. bellator, *Gr.* 106. 60.—coracinus *Gmel.*—Beginning of June New Forest, and July in Scotland.

The Plant is *Atriplex patula* (Spreading Halberd-leaved Orache).


Butomus umbellatus

PIMPLA ÆTHIOPS.

Order Hymenoptera. Fam. Ichneumonidæ *Lat.*, *Leach.*
Type of the Genus Ichneumon manifestator *Linn.*

Pimpla *Fab.*, *Lat.*, *Leach.*, *Fallen.*, *Panz.*—Cryptus *Fab.*—Ichneumon *Linn.*, *Fab.*, *Panz.*

Antennæ inserted in the middle of the face, approximating, long, pubescent, subsetaceous in the males, filiform in the females, composed of numerous joints (never transverse); basal joint the most robust, ovate, truncated obliquely, 2nd as long but slender, 3rd very long, 4th much shorter (1), the remainder decreasing in length to the apex, the terminal joint being longer than the foregoing (1b).

Labrum minute concealed beneath the clypeus, horny, ciliated with long hairs, producing a triangular membranous lobe beneath (2).

Mandibles small, robust, subtrigonate, slightly bent, bidentate at the apex (3).

Maxillæ terminated by a rounded pilose lobe, having a smaller fleshy one on the inside. *Palpi* long pubescent, 5-jointed, unequal, 1st and 2nd subclavate, the latter rather longer and more robust, 3rd the longest but slenderer, 4th rather shorter, 5th scarcely longer than the basal joint and very slender (4).

Mentum oblong dilated anteriorly, the angles truncated and receiving the base of the *Palpi*, which are 4-jointed, 1st and 2nd joints obtrigonate, especially the latter, 3rd and 4th more slender, the former subclavate, the latter subconic. *Lip* placed far behind the mentum, membranous, hollow, deeply and acutely cleft in the centre (5).

Head *transverse.* Eyes *remote.* Ocelli *large*, 3 *in triangle.* Thorax *long ovate, gibbous.* Abdomen *almost sessile elongated subcylindric*, 8-*jointed, more linear in the male* (7); *more robust and truncated at the apex in the female* (6); Ovipositor *exserted; frequently much longer than the body; the sheath* (6a) *arising from the superior angle is composed of* 2 *hollow lobes, externally pubescent and shorter than the* Oviduct *inserted beneath and formed of a rigid acute and hollow process* (b) *inclosing* 2 *other more slender rigid filaments* (c) *with membranous edges, apparently hollow, lanceolate and striated transversely externally at the apex.* Wings *with the central submarginal cell small, trigonate or rhomboidal.* Legs, *anterior short, posterior pair long.* Coxæ, *posterior very large.* Tibiæ *spurred at the apex.* Tarsi 5-*jointed, penultimate joint minute.* Claws *long and bent.* Pulvilli *large.*

Obs. the dissections are drawn from *I. instigator* Fab.

Æthiops *Nob.*—corruscator? *Linn.* not of *Fab.*

Black, shining, minutely punctured, pubescent. Antennæ lurid at their tips. Anterior legs with the tibiæ and a stripe down the thighs ochraceous. Tarsi fuscous. Oviduct ferruginous. Wings fuscous transparent.

In the Author's and other Cabinets.

Fabricius having drawn his best character for the division of Pimpla and Cryptus from a sexual distinction (the form of the antennæ), it becomes necessary to have recourse to other parts to establish them as genera. The only difference we shall now point out is the nearly sessile abdomen of Pimpla, and the peduncled one of Cryptus, a mark which will be found sufficient to separate them.

By this arrangement the genus Pimpla will be very much circumscribed; nevertheless it will be sufficiently extensive to admit of the following sections:

I. Ovipositor longer than the body.

* Abdomen slender.

1. P. persuasorius *Linn.*—*Don.* 15. 522.—Beginning of July; about Pine-trees near Manchester, and in a garden in Norfolk. Mr. Bracy Clark informs me that he took the females upon Pine-trees in Switzerland, and that they were not able to extricate their oviduct from the crevices in the bark where they were inserted.

2. P. manifestator *Linn.*—*Panz.* 19. 21.—*Sam.* 8. 4.—*Linnean Transactions v.* 3. *tab.* 4.

June; upon posts, Norfolk, Kensington Gardens, &c.

3. P. mediator *Fab.* Scurra *Panz.* 92. 6.

4. P. extensor? *Fab.*—*Panz.* 109. 11.

* * Abdomen robust.

5. P. Cossivora *Nob.*—Bred from the pupa of Cossus ligniperda. *Brit. Ent. pl.* 60.

II. Ovipositor shorter than the body.

6. P. pennator? *Fab.*

7. P. instigator *Fab.*

8. P. spectrum (Sirex) *Don. v.* 7. *pl.* 225. not of *Linn.* nor *Fab.*—June, amongst leaves of Horse-radish.

9. P. Æthiops *Nob.*—Bred from the pupæ of Arctia cænosa. *Brit. Ent. pl.* 68.

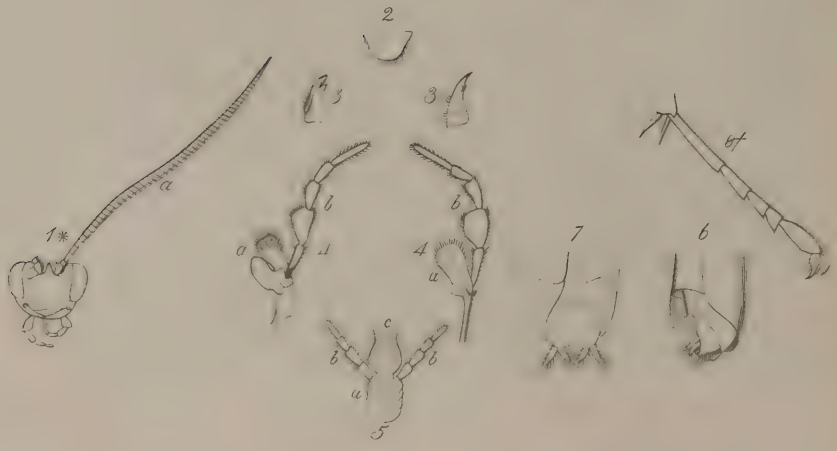
10. P. examinator *Fab.*

11. P. accusator *Fab.*—*Panz.* 109. 12.

The above are the only species that appear to be described. It is well known that they all deposit their eggs in different larvæ; those with long oviducts in internal feeders, and the others in caterpillars of moths: many, if not all the Pimplæ when taken, emit a very fœtid odour. The ovipositor is gerally considered to consist of 3 parts, but my friend Mr. Thomas Carpenter has discovered that the central part or oviduct is composed of a sheath inclosing 2 filaments; which gives strength, prevents the entrance from being closed when the oviduct is placed at a right angle with the body, and enables the insect to regulate the passage to the size of the egg: the same structure obtains in the Cynipsidæ also.

One of the plants upon which *Arctia cænosa* feeds, *Butomus umbellatus* (Flowering Rush), is given with the Pimpla, which is a female.





Publ. by J. Curtis London Jan. 1. 1824

4.

PELTASTES DENTATUS.

Order Hymenoptera. Fam. Ichneumonidæ *Lat.*, *Leach.*

Type of the Genus Ichneumon necatorius *Fab.*

Peltastes *Ill.*—Metopius *Panz.*, *Lat.*—Ichneumon *Forst.*, *Fab.*, *Marsh.*, *Panz.*, *Jur.*

Antennæ inserted above the middle of the face, in 2 cavities between the eyes, long, robust, straight, setaceous and attenuated towards the base, composed of 60 joints and upwards (fig. 1* a).

Labrum triangular rounded and ciliated in front (2).

Mandibles strong, slightly arcuated, acute, bifid near the apex (3, 3).

Maxillæ terminated by 2 lobes nearly of equal size, the internal one almost naked, the external very pilose and dilated (4 a). *Palpi* very long and hairy, 5-jointed, basal and 3rd joints nearly of equal size, 2nd very large, subobovate, 4th the smallest, 5th long and slender (4 b).

Mentum oblong (5 a). *Palpi* short, hairy, composed of 4 nearly equal joints (b). *Lip* large, membranous, striated, sides recurved (c).

Head *rather small, transverse; face scutiform sometimes acuminated between the antennæ* (1*). Eyes *oblong*. Ocelli 3 *in a depressed triangle*. Thorax *short globose*. Scutellum *quadrate, the sides reflexed and produced at the angles*. Abdomen *almost sessile, the basal joint being scarcely narrowed at its attachment, long, somewhat ovate and depressed, concave beneath; composed of* 8 *joints in the male* (7 *the underside of apex*); *and* 7 *in the female* (6 *the underside*). Ovipositor *nearly concealed*. Wings *shorter than the body; superior with one long marginal and* 3 *submarginal cells, the middle one small rhomboidal*. Legs; 4 *first short and small, posterior longer and robust*. Tibiæ *spurred, the posterior pair with* 2 *spines at the apex*. Tarsi 5-*jointed*. Claws *strong*. Pulvilli *large* (8†, *tarsus, &c. of a hind leg*).

Larvæ *parasitic feeding upon the caterpillars of various Bombycidæ*.

Obs. *the Trophi and fig.* 6 *are drawn from the type, and the other parts are taken from* P. dentatus.

Dentatus *Fab. Ent. Syst.* 2. 180. 192.—Micratorius, *Fab. Syst., Piez.* 62. 41.—Pini *Curtis Brit. Ent. ed.* 1. *fol.* 4.

Black, deeply and thickly punctured: antennæ ochraceous beneath: nasus yellow. Thorax with 8 yellow spots before the insertion of the wings, and 2 at the base of the scutellum, which is margined with yellow behind. Abdomen with 4 yellow spots on the 1st and 2nd segments, the remainder margined with yellow. Wings obscure ferruginous, stigma and nervures brighter. Legs yellow, 1st pair the palest: the posterior thighs striped black inside.

In the Author's and other Cabinets.

Peltastes receives its generic name from the face forming an escutcheon or shield: like the rest of the family these insects are parasitic in the larva state, the females depositing their eggs in the

caterpillars of Lepidoptera; they begin to feed as soon as they are hatched upon the muscles of their victim, until the whole internal substance is consumed, excepting the alimentary canal. In this diseased state the caterpillar changes to a chrysalis, frequently assuming the natural form, although the colour is sometimes altered; but instead of a moth or butterfly, one or more Ichneumonidæ are produced.

This tribe of insects, however, is eminently useful, employed as it appears to be, to destroy and keep within bounds those hosts of caterpillars which otherwise might frequently deprive vegetation of its beauty and utility: to convince the reader of this, it will be only necessary to refer him to the "History of the Brown-tail Moth, by W. Curtis."

The following are the species and varieties of this genus:

1. P. necatorius *Fab. Ent. Syst.* 2. 144. 45.—Vespoides *Panz. fasc.* 47. *pl.* 19.
Black, thickly punctured. Antennæ orange beneath. Clypeus, 2 spots on the shoulders and margin of scutellum yellow, base of abdomen, a spot on each side the apex of the first joint and the margins of the remainder of the same colour. Legs yellow, thighs partially black. Wings yellowish fuscous.

August.—Southwold, Suffolk, and Plaistow marshes near London: it has been bred from the pupa of *Stauropus Fagi*. This may prove to be the other sex of the following species.

2. P. dentatus *Fab.*—Micratorius *Fab.*—Pini *nob.*—α Chrysopus. *Trans. Linn. Soc. v.* 3. *tab.* 2. *f.* 5.—β Polyzonias *Forst. Cent. of Ins. n.* 85.

This is the largest species, and has been taken in June by Mr. Bentley and Mr. Dale, near Ringwood, Hampshire, flying amongst pine-trees, in the sunshine; and by the latter gentleman also on the heathy side of a mountain near Ambleside, Westmoreland; and var. α was bred from the pupa of *Lasiocampa Trifolii*. This species, like the rest of the genus (indeed of the family I might say), is extremely variable; some having orange antennæ not black above as in var. α, others with the clypeus, palpi, and all the thighs black, and yellow bands to all the segments of the abdomen; and in var. β the thighs are ferruginous. Although there is no doubt but this last is a variety only of *P. dentatus*, as it seems to be a very uncommon example, I have not adopted Forster's name, which otherwise has the right of priority.

3. P. dissectorius *Panz. Faun. Germ. fasc.* 98. *n.* 14.
Black thickly punctured. Abdomen chalybeous, margins of 4 first joints yellow; legs piceous, thighs partially black. Wings with a fuscous spot beyond the stigma.

I took a specimen the end of September, 1822, in the North of Devon, and have since received another, which is a very strong variety, being black, with a yellow spot only on each side of the 3 first segments of the body and a yellow margin to the 4th, and the fuscous spot on the wings is very faint.

A small portion of *Pinus Abies* (the Spruce Fir) accompanies the insect.










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1*
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660.

EUCEROS ALBITARSUS.

ORDER Hymenoptera. FAM. Ichneumonidæ.

Type of the Genus, Euceros crassicornis *Grav.*

EUCEROS *Grav., Curt.*

Antennæ inserted near the middle of the face, approximating, as long as the body, porrected, subfusiform, composed of numerous joints, basal joint somewhat chalice-shaped, 2nd short and broad, 3rd minute, 4th slender and elongated, 5th and 4 following subquadrate, about 10 of the succeeding compressed, dilated internally and forming a fusiform mass, the remainder short and tapering to the apex (1).

Labrum concealed under the clypeus.

Mandibles short, crossing, bifid at the apex.

Maxillæ not examined. *Palpi* long slender pubescent and 5-jointed, 2nd joint stout nearly as long as the 3rd; 4th and 5th rather shorter and slenderer (4).

Labium not examined. *Palpi* short and 4-jointed, apical joint small and ovate (5).

Head *transverse, face broad* (1 *), *projecting under the antennæ* (1 †): eyes *remote, lateral and ovate:* ocelli 3 *in triangle on the crown of the head.* Thorax *ovate, gibbose:* scutel *large, semiorbicular and convex.* Abdomen *sessile, somewhat elliptical, incurved, depressed, the segments constricted at their junction,* 1*st joint longest, broad, narrowed at the base* (7). Wings, superior *without an areolet.* Legs *slender, anterior the shortest, posterior the longest and stoutest:* thighs *short:* tibiæ *not much longer, spurred:* tarsi 5*-jointed, basal joint long:* claws *and* pulvilli *minute.*

ALBITARSUS *Curt. Guide, Gen.* 522. 37. 2*nd Edit.*

In the Author's Cabinet.

THIS remarkable genus is so exceedingly rare that only three specimens of the first species have been discovered, and but one of each of the others, and the females are unknown, which will account for the incomplete description of the trophi, it being quite impossible to obtain a specimen for dissection; at the same time I could not resist the temptation of giving a figure of the magnificent novelty represented in our plate, as it cannot fail to be acceptable to those who admire and study the interesting order of Hymenoptera.

1. crassicornis *Grav. v. 3. p. 370. No. 35.—Shuck. Transl. of Burm. fig. 2 of Frontispiece.*

Black, thickly and minutely punctured; antennæ brown, the dilated portion ochreous: head excepting the crown yellow, a hooked mark on each shoulder, 2 below the wings, margin of scutel and edges of abdominal segments straw-colour: legs straw-colour, hinder piceous, trochanters and knees yellowish: expanse 6 lines.

My specimen, which I obtained from the cabinet of the late Mr. E. Blunt, appears to be a male, and was captured I believe at Birch Wood.

2. serricornis *Hal. MSS.*

I regret having no description of this insect, which was taken I believe in Ireland by Mr. Haliday.

3. albitarsus *Curt. Brit. Ent. pl.* 660 ♂.

Shining black, very thickly and minutely punctured and finely pubescent; antennæ ochreous outside from the base beyond the middle, excepting the 1st joint, and extending along the central portion of the back: face and cheeks yellow, a small and large spot on each shoulder and 3 forming a line down the pleuræ yellow; abdomen ferruginous-red, the basal joint black, the anterior margin reddish: posterior margin of wings fuscous, stigma and nervures black: legs ferruginous-ochre, coxæ and trochanters black, the former in the 4 anterior with a yellow spot outside; hinder tibiæ black, red inside, their tarsi yellowish-white, the basal joint black, apex brown.

Mr. W. Simmons took this specimen off a Dock in May or June on the borders of a wood near Milton in Northamptonshire, and very liberally added it to my Cabinet.

The Plant is *Veronica officinalis*, Common Speedwell.



588.

BANCHUS FARRANI.

Order Hymenoptera. Fam. Ichneumonidæ.

Type of the Genus, Banchus pictus *Fab.*

Banchus *Fab., Panz., Grav., Curt.*—Ichneumon *Linn., Fab.*

Antennæ inserted near the middle of the face, as long as the body in the female, shorter and more curved at the apex in the male; setaceous, composed of numerous joints, basal one robust and ovate, truncated obliquely to receive the 2nd, which is stout, 3rd small, 4th the longest, the remainder decreasing in length and size to the apex: (1, the base and apex).

Labrum triangular and hairy, the base horny, with a membranous attenuated and pointed lobe attached beneath (2).

Mandibles curved, bifid at the apex, internal tooth the longest and emarginate (3).

Maxillæ terminated by an orbicular hairy lobe, with a smaller one on the inside. *Palpi* not very long, pubescent and composed of 5 joints, nearly equal in length, 2 basal joints stout and clavate, 1st rather the longest, 3rd slender, 4th spatulate and very much dilated in some species, 5th slender and linear (4).

Mentum oval, anterior angles emarginate to receive the *Palpi*, which are not very short; hairy and 4-jointed; 2 basal joints short and pyriform-truncate, 3rd not quite so stout, a little longer and truncated obliquely, 4th the longest, slender and linear. *Lip* semicylindric, slightly emarginate (5).

Head *short transverse, face orbicular:* eyes *vertical, ovate:* ocelli *large,* 3 *in triangle on the crown.* Thorax *gibbose, ovate* (T, *c the collar*): scutellum, *convex, trigonate-ovate, generally with an incurved spine towards the apex* (*s*). Abdomen *sessile, subfusiform, compressed beneath and at the apex, somewhat scimeter-shaped in profile, basal joint broad and transverse at the base* (6, *the same in profile*), *the back most curved in the male, the belly more so in the female;* ovipositor *not exserted.* Wings *with a large submarginal cell, the lower external nervure not angulated,* areolet *subtrigonate, the base convex.* Legs, *hinder pair long and stout, with large coxæ:* tibiæ, *anterior short, with an internal spine at the apex, the others spurred:* tarsi *long and* 5*-jointed, basal joint long,* 4*th small:* claws *and* pulvilli *simple.*

Farrani *Curt. Guide, Gen.* 523. 3^{b}.

In the Author's Cabinet.

Nothing, I believe, is known of the œconomy of these insects: the males are distinguished by short antennæ, spiral at the apex; the abdomen is generally less dilated vertically at the apex, and is often a little incurved.

2. compressus *F.*—variegatus *F.—Schæf. Ic. t.* 130. *f.* 4. ♀.

Black; orbits of eyes, 2 spots on thorax, scapulars and a spot under them, scutel, an interrupted band on the postscutel and margins of segments,

yellow: antennæ and legs ferruginous, base of former above, coxæ, trochanters and base of posterior thighs, black; base of tibiæ and tarsi yellow: *Fem.* face yellow with a black stripe, antennæ black above: 4¾ to 6 lines long.

I think Mr. Dale took one in Middlemarsh Woods in May, and Mr. W. Clifton gave me a male he captured at Boulogne.

3. pictus *Fab.*—volutatorius *Linn.*?—cultratus *Gmel.*

Black; clypeus, internal orbit of eyes, scapulars, a spot under them, scutel, a spot on each side postscutel, and margins of segments, yellow: antennæ and legs ferruginous, base of former, coxæ, base of trochanters and outside of thighs, excepting the tips, black; tibiæ yellow, apex ferruginous: *Fem.* with 2 hooked marks on thorax, and face yellow, with a black stripe; antennæ sometimes blackish above: 5 to 5½ lines.

May, flowers in woods, Suffolk, J. C.; June, Parley Heath and Glanville's Wootton, Mr. Dale.

3ª. Farrani *Curt. Brit. Ent. pl.* 588. ♀.

Black; 3 basal joints of maxillary palpi and underside of antennæ ferruginous, mandibles yellow, tips piceous; orbits of eyes and face yellow, with a black stripe, furcate above the antennæ, leaving a yellow V in front of the ocelli; 2 hooked marks in front of the thorax, scapulars and a round and vertical spot beneath, scutel, excepting the short spine, and a transverse line of 6 dots on the postscutel, yellow; first 3 segments of abdomen broadly banded with yellow, the others with a small spot; legs orange; coxæ black, 4 anterior yellow outside; apex of posterior tibiæ and their tarsi above, excepting the base, blackish.

As I cannot consider this a variety I have named it after my esteemed friend Dr. Farran of Dublin, who was of our party in Connemara the end of last July, when I found a specimen flying about the plant figured, on the sand-hills near Roundstone. I have also received a female from Kinnordy, where it was taken by Mr. Lyell.

4. falcator *F.*—venator *F.*—*Panz.* 109. 15. ♂.—pictus *Don.* 12. 413. ♀.

Male black, back of abdomen rufous at the middle, legs fulvous, apex of posterior tibiæ and coxæ black, external orbit of eyes and underside of antennæ rufous; scutel tuberculated. *Fem.* underside of antennæ and face yellow, with a black stripe; a furcate mark on the forehead, and orbits of eyes yellow; 2 hooked spots on thorax, scapulars, a round and a long spot beneath them, scutel and 2 dots behind it, and one by each angle of postscutel, and a transverse band on the medipectus, yellow; back of abdomen, except the base and apex, yellow and ferruginous; legs yellow, coxæ black with large yellow spots outside; tips of hinder tibiæ and tarsi brownish: 5 to 7 lines.

June and July, common on umbelliferous plants.

5. hastator *Fab.*—monileatus *Grav.*

Black, legs fulvous, apex of hinder tibiæ and coxæ black; *male* with external orbits of eyes yellow; *female* with the mouth and face yellow, with a black line; thorax with a yellow horseshoe on the medipectus; 4 anterior coxæ fulvous beneath; scutel with an erected spine; margins of dorsal segments sometimes ferruginous: 4½ to 6 lines.

I have a female which I took at Darent in June, and have little doubt that it is the *B. hastator* Fab.

The Plant is *Raphanus maritimus* (Sea Radish).



736.
THERION AMICTUM.

ORDER Hymenoptera. FAM. Ichneumonidæ.

Type of the Genus, Ichneumon circumflexus *Linn.*

THERION *Curt.*—Anomalon *Grav.*—Ichneumon *Linn.*, &c.

Antennæ inserted a little above the middle of the face, longer than the wings in the male, filiform, composed of innumerable quadrate joints, basal one the stoutest, 2nd minute, 3rd the longest: shorter and stouter in the female, more tapering to the apex, and the joints transverse.

Labrum transverse, semiorbicular, ciliated with long hairs, having a minute lobe in the centre (2).

Mandibles slightly curved, terminating in a strong beak, with a long but smaller tooth outside where it is hairy (3).

Maxillæ short, terminated by a semiorbicular ciliated lobe, with a smaller semilunate one inside. *Palpi* very long, pilose and 5-jointed, basal joint rather the shortest, 2nd the stoutest, 5th the slenderest and linear, the apex ovate (4).

Mentum elongate-ovate. *Palpi* shortish, pilose and 4-jointed, basal joint obovate, 2nd stout, semiobovate, 3rd somewhat hatchet-shaped, 4th the longest, slender and subfusiform. *Lip* short and bilobed (5).

Head *transverse, base very concave; face orbicular-ovate:* eyes *ovate, not large:* ocelli 3 *in triangle on the crown.* Thorax *rather short, thick and oval:* scutel *gibbose and semiorbicular or subquadrate:* metathorax *sloping, flat and rugose.* Abdomen *very long and slender, compressed, arched, clavate, carinated above, with distinct spiracles down each side:* petiole *long, slender, cylindric and clavate, 2nd joint slender:* ovipositor *short but exserted.* (6 ♀, *terminal segments of female;* ♂ *the same of male.*) Wings *much shorter than the body; superior with a long marginal cell, no areolet and a long narrow stigma.* Legs *slender, anterior short, hinder very long:* trochanters, *hinder very long and biarticulate:* thighs *simple, clavate:* tibiæ *clavate, spurred:* tarsi, *hinder with 2, 3 or 4 of the basal joints incrassated in the males; 5-jointed, basal joint the longest, terminal one slender, clavate:* (8 † *hind leg*).

AMICTUM *Fab.*—*Curt. Guide, Gen.* 531. 114.

Male, head with an acute spine in front, black as well as the thorax, thickly punctured and pubescent: antennæ very long, ferruginous, ochreous beyond the middle, basal joint yellow with a black line outside, 2nd and base of 3rd yellow beneath: face and trophi yellow: abdomen ferruginous, a faint streak of black on the petiole and a black shining stripe on the back of the 2nd; 4th and following segments fuscous beneath as well as the backs of 2 or 3 of the terminal: wings yellowish, the margins slightly fuscous, nervures brown, stigma ochreous: legs yellowish, outside of thighs and apex of tarsi ochreous: hinder legs bright ferruginous, coxæ and trochanters yellow beneath; apex of tibiæ dull black; tarsi dilated, basal joint attenuated to the base, the following ochreous, 2nd joint robust oval, 3rd but slightly thickened, 4th minute, 5th small and clavate.

THIS pretty little group is distinguished from Paniscus by the absence of the areolet, and from Ophion (pl. 600.) by its less

ample and shorter wings, as well as by a striking difference in the form of the nervures, where the areolet is situated when present, and by the thicker posterior legs, their tarsi being generally more or less incrassated in the males; but in a new species which I shall describe, and also in *T. tenuitarsum*, they are not thickened.

Having published the genus Anomalon before Gravenhorst's work appeared, it may appear necessary to give my reasons for rejecting some of his names in the Guide. 1st Bassus of Fabricius is Gravenhorst's 3rd family of Cryptus, *seductorius* being the type given in the Piezatorum; 2ndly, Jurine's 1st family of Anomalon, which of course is his type, Gravenhorst has called Bassus. 3rdly Jurine's 2nd family of Anomalon I have called Therion, because it is not the typical Anomalon.

1. *Scutellum yellow or ferruginous.*

1. enecator *Rossi.—Grav. Ichn. Europ.* 3. 641. 110.
I cannot remember the localities of this species, 5. and 9.

2. circumflexum *Linn.—Don.* 3. *pl.* 93. *f.* 2?
Taken at Darent: I believe it has been bred from the caterpillars of Sphinx Ligustri.

2. *Scutellum black, rarely rufous.*

3. amictum *Fab.—Curt. B. E. pl.* 736 ♂. a little magnified.
For the specimen figured I am indebted to Mr. C. Lyell, who took it at Kinnordy in Forfarshire.

4. xanthopus *F.—Grav. p.* 652. *no.* 116. June, Darent.

5. ruficorne *Grav.* 655. *no.* 116[b]. 'Netley, Salop, Mr. Hope.'

6. cerinops *Grav.* 658. *no.* 118.—flavifrons *Grav. Uebers.*
I think I took it at Dover.

7. flaveolatum *Grav.* 664. *no.* 122.—auricapillus *Gmel.*?
Middle of June, Yorkshire, and Aug., Isle of Arran, J. C.

8. tenuicorne *Grav.* 671. *no.* 125.
Coomb Wood, on oaks; males in May, females in July.

9. gracilipes *Curt.* Length $5\frac{1}{2}$ lines.
Male ferruginous; head and thorax, a streak on the 2nd abdominal segment, and 3 apical joints black: antennæ very long and slender, brown, ferruginous beneath to the middle, face and anterior coxæ yellow: hinder with a black patch at the base, inside: wings short, nervures brown, stigma yellow: legs slender, hinder tarsi not dilated.

10. fibulator *Grav.* 681. *no.* 131.
Isle of Portland 14th May, and b. Aug. Heron Court.

11. tenuitarsum *Grav.* 683. *no.* 133.
I think it was this which Mr. Dale bred from pupæ of *Episema cæruleocephala*.

Dr. Balfour of Edinburgh obligingly communicated specimens of the Coral-rooted Boat-lip, *Corallorhiza innata*, from Ravelrig bog, where they were found growing last July.



600.

OPHION VENTRICOSUS.

ORDER Hymenoptera. FAM. Ichneumonidæ.

Type of the Genus, Ichneumon luteus *Linn.*

OPHION *Fab., Grav., Curt.*—Anomalon *Jur.*—Ichneumon *Linn.*

Antennæ inserted above the middle of the face, remote, nearly as long as the insect, very slender, the apex somewhat curved in the female, composed of numerous joints, basal one a little the stoutest.

Labrum inserted under the clypeus, subtrigonate, arched at the base, with the angle produced, the apex acuminated, the sides convex and hairy (2).

Mandibles curved, convex, strongly bifid at the apex (3).

Maxillæ short with an oval fleshy internal lobe and a larger rounded and hairy external one. *Palpi* long pilose and 5-jointed, 2 basal joints elongated, stout and clavate, the remainder slender, 3rd the longest, 4th and 5th a little shorter, the latter conical at the apex (4).

Mentum obovate-truncate, the angles emarginate to receive the *Palpi* which are much shorter than the maxillary, pilose and 4-jointed, first 3 joints somewhat pear-shaped and nearly equal in length, 4th longer slender, conical at the apex. *Lip* rather large and deeply notched in the middle (5).

Head *short and broad:* face *transverse-ovate.* Eyes *large, vertical and reniform:* ocelli *large and very prominent, forming a triangle on the crown* (1 * *the face, the* 2 *dark spots showing the sockets of the antennæ and above them the ocelli*). Thorax *ovate gibbose:* scutellum *semiorbicular and convex, the sides compressed.* Abdomen *carinated, falcated, clavate and compressed at the apex, attached by a long slender clavate petiole, the apex truncated obliquely, the last joint a little acuminated above and deeply notched on the side, with* 2 *slender styles under the apex, an incurved hook in the centre and* 2 *broad vertical lobes at the bottom, meeting at the apex* (6 ♂): *deeper in the female* (6 ♀), *with* 2 *small styles as in the male and a cleft one that is parallel and* 2 *lobes somewhat erected at the middle, with a groove reaching from the apex into the 6th segment, inclosing the aculeus or oviduct* (*o*). Wings *ample extending to the apex of the abdomen; superior with a long marginal cell, not reaching the apex, the internal cubital cell very long, semilunate, the apex being elongated, without an areolet, the inner nervure of the discoidal cell very much curved, sometimes angulated, with a small branch.* Legs *long and slender:* tibiæ *with long spurs at the apex, anterior with one spine:* tarsi *long slender and* 5*-jointed, basal joint very long,* 4*th the shortest:* claws *and* pulvilli *distinct.*

VENTRICOSUS *Grav.—Curt. Guide, Gen.* 532. 141.

Ochreous with a reddish tinge, eyes, crown of head, and a line a little way down the face black, a line on the fore part of the thorax, the entire underside, metathorax and 6 spots inside the hinder coxæ black; apex of abdomen silky piceous; wings yellowish, stigma ochreous, nervures brown; antennæ orange, especially in the male.

In the Author's and other Cabinets.

[illegible]

The sexes of Ophion are rather difficult to distinguish, for even the abdominal appendages are very similar; but an oblique suture, in which the oviduct is secreted, distinguishes the females: this oviduct is short and rigid, being well fitted for puncturing the skins of larvæ in order to deposit the eggs; and from its acuteness and horny substance it seems to be equally well adapted for defence.

It has struck me as very remarkable that one often can obtain only one sex of Ophion from an infested larva, although a considerable number may be hatched: having observed this several times it can scarcely be accidental; I am therefore rather inclined to think that one sex appears before the other, and that the eggs of each are deposited separately in different Caterpillars.

The following are British species, 2 of which are unrecorded natives.

1. O. luteus *Linn.*—*Schæff. Icon. t.* 1. *f.* 10.
 "Testaceous, eyes fuscous; interior nervure of the radial cell straight: *male* 6—9, *fem.* 4—9 lines."

 The maggots are said to infest the larvæ of *Noctua præcox* (pl. 539.), but I have always obtained the fly from the pupæ of *Cerura Vinula*; the female I have found in May, and I took a small pair the middle of last October flying amongst heath in the neighbourhood of Heron Court.

2. merdarius *Grav. v. 3. p.* 698. *n°.* 138.
 "Testaceous, eyes fuscous, interior cell bipunctate in both sexes: 6 to 10 lines long." *Grav.*
 I have taken it in Norfolk.

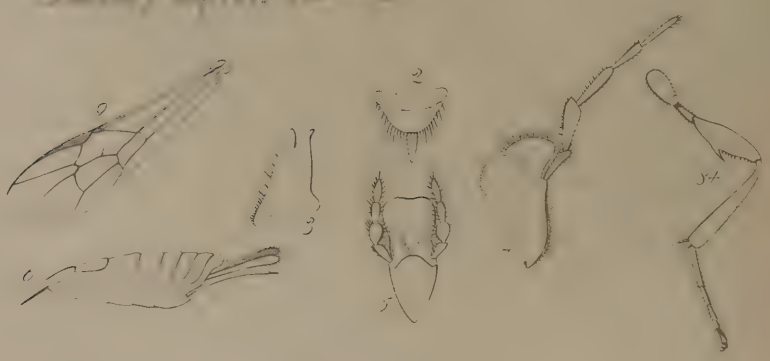
3. ramidulus *Linn.*
 "Testaceous, apex of abdomen black; interior cell bipunctate in both sexes: 6 to 10 lines." *Grav.*
 I took a specimen in Darent Wood, I believe.

4. ventricosus *Grav.*—*Curt. B. E. pl.* 600, the male a little magnified.
 "Rufous, apex of abdomen, pectus and metathorax black or maculated with black: *male* $4\frac{1}{3}$—$7\frac{1}{4}$ lines, *fem.* $6\frac{1}{2}$ to $7\frac{1}{2}$." *Grav.*
 Beginning of June near Oxford.

5. marginatus *Jur. tab.* 8. *f.* 4.
 "Rufous, apex and base of abdomen, also suture of the thorax black: 7—10 lines." *Grav.*
 May and June, amongst pine trees.

The Plant is *Heracleum Sphondylium* (Common Cow Parsnep).





PRISTOMERUS VULNERATOR.

ORDER Hymenoptera. FAM. Ichneumonidæ.

Type of the Genus Pachymerus vulnerator *Grav.*

PRISTOMERUS *Curt.*—Pachymerus *Grav., Curt.*—Ichneumon *Panz.*

Antennæ shorter than the body, slender, narrowed at the base, pubescent, composed of 32 joints at least, 3rd and following elongated to the middle, where they are oblong, and soon become very short and turbinate, the apical joint being subconic.
Labrum trigonate, cuspidate.
Mandibles bifid, very acute.
Maxillary Palpi composed of 5 nearly equal joints.
Mentum long and narrow. *Palpi* forming 4 short joints.

Head *transverse:* eyes *not very remote, large and subglobose:* ocelli 3, *very large.* Thorax *obovate:* scutel *semiovate:* postscutel *not elongated, with* 4 *elevated lines.* Abdomen *subfusiform, compressed, falcate and clavate at the apex:* petiole *long, very narrow at the base:* ovipositor *slender, as long as the body.* Wings *ample; stigma large, trigonate; areolet none; marginal and discoidal cells short.* Legs *slender, hinder the longest and stoutest, especially in the males; their* thighs *with a strong spine beneath at the middle, beyond which they are denticulated to the apex in the male only* (8 †).

VULNERATOR *Panz., Grav.—Curt. Guide, Gen.* 535, 149.

Deep, shining black; middle of abdomen yellow beneath, apex of 2nd and 3rd segments rufous in the male, all of them edged with yellow in the female: trophi and legs ochreous: hinder coxæ, sometimes the trochanters, thighs, excepting their base, apex of tibiæ and tarsi piceous, as well as the stigma and nervures: expanse 6 lines.

MR. SHUCKARD discovered this rare species in Battersea Fields the beginning of last July, when he took several males and two females on the flowers of the garden Parsnep, and by his obliging addition of specimens to my cabinet, I am enabled to give a magnified figure of the male. Its flight is peculiar, resembling that of the Lark.

It has long since been observed in this work, that the trophi cannot be expected to differ much in allied groups, and consequently that they enable us to generalize and form families rather than genera, and this is exemplified in the two species of Pachymerus, whose organs of manducation are very similar, yet in other respects they vary so greatly, that they cannot be included in one genus: the structure of the antennæ, the neuration of the wings, and the dentated hinder thighs in *P. vulnerator* are characters sufficiently strong to justify its separation; I have therefore applied the name of Pristomerus to this species, reserving Gravenhorst's Pachymerus for that which has the thickest thighs in both sexes, which I shall now describe.

PACHYMERUS *Grav.*

Antennæ inserted in front of the face, not so long as the body, slender at the base, slightly thickened to the apex, composed of at least 22 joints, the basal ones forming an ovate mass, 3rd elongated, the following decreasing in length, being oblong beyond the middle; pubescent in the male, and each joint producing a bristle on the inside.

Labrum trigonate, anterior margin rounded and ciliated with long hairs, with a membranous strap-shaped lobe in the centre (2).

Mandibles elongate-trigonate, broad and bifid at the apex (3).

Maxillæ terminated by 2 large rounded lobes, the outer one ciliated. *Palpi* long, pilose and 5-jointed, basal joint clavate, 2nd longer and stout, the remainder decreasing in bulk, the 4th not longer than the 1st, the terminal one linear (4).

Mentum obconical. *Lip* large and slightly cordate. *Palpi* rather longer than the lip, pilose and 4-jointed, basal joint clavate-truncate, 2nd stout subglobose, the following elongate-ovate (5).

Head *short and narrow, base concave; face convex:* eyes *remote, small and ovate:* ocelli 3 *in triangle on the crown.* Thorax *narrow and elongated:* scutel *semiovate, convex:* postscutel *long and narrow, with* 4 *elevated lines.* Abdomen *subfusiform, gradually narrowed to the base, the apex compressed and clavate; broader and deeper in the female* (6); *truncated obliquely with a long groove to receive the short and stout* ovipositor *which extends about* $\frac{1}{4}$*th beyond the apex.* Wings *ample, superior without an areolet, stigma and marginal cell elongated, the upper discoidal one with a short internal branch* (9). Legs *very slender, excepting the hinder, which are long and stout:* coxæ, *posterior long, their* thighs *thick in both sexes:* tibiæ *spurred, hinder long and clavate:* tarsi *long, simple, and 5-jointed, basal joint long, 4th the smallest:* claws *and* pulvilli *minute.*

Calcitrator *Grav.*—*Curt. Guide, Gen.* 535. No. 150.

Black, shining; antennæ brown, yellow beneath; apex of the petiole, 2nd, 3rd, and 4th segments rufous, the 2nd generally with a brown patch on the back, the remaining segments edged with white: nervures and stigma brown: legs brown, 4 anterior ochreous, except on the outside; hinder tibiæ sometimes inclining to reddish-brown, especially at the base: expanse $6\frac{1}{2}$ lines.

Not an uncommon insect. I have taken the female at Coomb Wood and in the Isle of Wight the middle of June, and males at Darent and Dover the end of July. Mr. Shuckard finds both sexes on umbellate flowers in Battersea Fields.

The Plant is *Scandix* (*Myrrhis* Scop.) *odorata*, Sweet Cicely found at Knaresborough by J. Walton, Esq.


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353.

XYLONOMUS PILICORNIS.

ORDER Hymenoptera. FAM. Ichneumonidæ *Lat.*

Type of the Genus, Ichneumon irrigator *Fab.*

XYLONOMUS *Grav., Curt.*—Bassus *and* Ichneumon *Fab.*

Antennæ nearly as long as the body in the *males,* filiform, rugose and very pubescent beneath, composed of about 26 joints; basal joint robust, 2nd minute, 3rd long, 4th longer, the remainder gradually decreasing in length to the end, the apical joint elongate-conic (1 ♂): shorter in the *female,* pubescent, slightly thickened and curved at the apex; composed of many joints, basal one subglobose, 2nd minute, 3rd and 5 succeeding long, 5 following shorter, the remainder more or less cup-shaped, several producing slender spines nearly at right angles, terminal joint long and conical (1 ♀).

Labrum transverse-oval, the basal angles produced; a fleshy lobe projecting from beneath, semicircular and densely pilose (2).

Mandibles short, subtrigonate, very broad at the base, internally concave with a fascicle of hair on each side towards the apex (3).

Maxillæ short and broad, internal lobe oval and clothed with short pubescence, external a little larger, broader and very pilose.

Palpi very long and pubescent, pilose on the inside, 5-jointed, 1st and 2nd joints robust, subclavate, the latter a little the largest, the remainder slender, the 3rd very long, 4th not longer than the 1st, 5th as long as the 3rd (4).

Mentum subobovate, truncated before, a little dilated where the *Palpi* are attached, these are stout, very hairy and 4-jointed, basal joint subclavate, 2nd and 3rd subtrigonate, the latter the smallest, 4th as large as the basal joint, ovate-conic. *Lip* forming 2 spreading lobes (5).

Head *subglobose.* Eyes *not very prominent.* Ocelli 3 *in triangle.* Thorax *elongate-oval:* postscutellum *bidentate.* Wings *having no areolet* (9). Abdomen *sessile, slightly depressed, generally rugose at the base, with two elevated longitudinal lines on the 2 basal joints; slender and somewhat elliptical-conic in the male* (7), *basal joint tuberculated on the sides, 3rd and 4th at the base, the former being the largest: broader and subfusiform in the female: ovipositor nearly or quite as long as the abdomen.* Legs, *anterior small, posterior long and rather stout:* tibiæ *suddenly narrowed at the base in the females, with a transverse groove:* tarsi 5-*jointed, basal joint the longest.*

Obs. *The dissections are taken from* X. pilicornis *and the trophi from a female.*

PILICORNIS *Grav. Ichn. Eur. v.* 3. *p.* 833. *n.* 9.—*Curtis's Guide, Gen.* 541. *n.* 9.

In the Cabinets of Mr. Davis and the Author.

Xylonomus of Gravenhorst is distinguished from Xorides of Latreille by the abdomen being broader at its base, and scabrous instead of smooth.

The Xylonomi are so called from their inhabiting wood, and like most others that reside in timber in the larva state they vary greatly in size in the same species. In fine weather the females run over the surface of paling and trees perforated by bees and other insects, and investigate the holes with their antennæ in order to ascertain if they contain any larvæ; but I have never seen this rare insect deposit its eggs.

Gravenhorst neither mentions the singular base of the tibiæ in the females, nor the curious spines towards the apex of their antennæ, which in the only male I have examined are nearly straight, filiform, and very pilose on the underside.

Two species appear to inhabit Britain, neither of which has been figured.

1. X. pilicornis *Grav.*—*Curt. Brit. Ent. pl. 353. fem.*

Male black, slightly pubescent, head sparingly, thorax very thickly punctured; postscutel rugose: abdomen rugose, smooth towards the apex, 2nd and 3rd joints rufous: stigma and nervures piceous, the former white at the base: palpi pale fuscous; anterior legs ochreous, posterior rufous; trochanters, coxæ and base of thighs black, hinder tibiæ and tarsi brown, the former subochreous at the base and tip. *Female* with the 12th and 3 following joints of the antennæ whitish: abdomen rufous, blackish at the apex: ovipositor longer than the body, black, oviduct rufous: legs rufous, trochanters and coxæ black, 4 anterior legs variegated with fuscous, hinder tibiæ and all the tarsi brown.

I first discovered a male of this insect many years since in Coomb-wood, on the 8th of June, and I took a female the 20th of last May on a rail near Hampstead. The fine female figured (which is much larger than mine) was taken by my friend Mr. Davis, I believe near Gravesend.

2. X. Gravenhorstii *Curtis.*

Male undiscovered. *Female* 4 lines long, aculeus 2 lines. Distinguished from the last by its short antennæ and ovipositor, and by its more slender form; the base and tip only of the abdomen are black; it is smooth, not rugose, and the longitudinal lines at the base are scarcely visible.

I have taken two females of this nondescript near London, and have dedicated it to the distinguished Professor whose elaborate work has enabled me to study this curious and extensive family, of which I possess upwards of 400 British species.

The plant is *Briza minor* (Small Quake-grass), found near Poole, Dorsetshire, by the Hon. C. A. Harris.



69.

BRACON DENIGRATOR.

Order Hymenoptera. Fam. Ichneumonidæ *Lat.*, *Leach.*

Type of the Genus Ichneumon desertor *Linn.*

Bracon *Jur.*, *Fab.*, *Lat.*, *Panz.* Ichneumon *Linn.*, *Fab.* Vipio *Lat.*, *Hist. Nat.*

Antennæ inserted in front of the head, nearly filiform, somewhat thickened towards the extremity in the male only, pubescent, composed of about 47 joints, 1st joint robust, elongated, truncated, 2nd cup-shaped, 3rd longer than the following, which decrease in length imperceptibly to the last joint which is conic (fig. 1).

Labrum coriaceous, trigonate, inflexed, apex acute, membranaceous appendage small, lanceolate. *Lat.*

Mandibles small, acute, internal edge sinuated (3).

Maxillæ small, terminal lobe large, trigonate, somewhat acute, hairy, coriaceous externally, membranaceous internally: *Palpi* very long, pilose, 1st and 2nd joints small, the 3 following long of nearly equal length, the first being very robust, the last slender (4).

Mentum elongated, dilated anteriorly, deeply emarginate (5 a): *Palpi* longer than the lip, pilose, 3-jointed, 1st joint short, 2nd long, robust, clavate, 3rd long, somewhat slender cylindric (b): *Lip* entire, concave, sides conniving externally (c).

Head *quadrate.* Ocelli 3, *distant in the males, approximating in the females.* Abdomen *somewhat depressed, nearly sessile, ovate in the males, obovate in the females.* Oviduct *in some longer, in others shorter, than the body* (6). Wings *pubescent, with* 1 *marginal,* 2 *submarginal and* 2 *discoidal cells, the marginal and* 2*nd submarginal cells elongated in the females* (9). Legs *robust.* Thighs *short.* Tibiæ *spurred.* Tarsi 5*-jointed,* 1*st joint elongated,* 4*th minute.* Claws *simple.* Pulvilli *distinct.*

Denigrator *Linn. Syst. Nat.* 2. 934. 28.—*Fab. Ent. Syst. v.* 2. *p.* 161. *n.* 112.

Black, smooth, shining, slightly pubescent, abdomen orange, shining, punctured pubescent. Wings iridescent, dark fuscous, with a transverse obscure, whitish, lunulated mark, crossing the 1st submarginal cell, nerves strong, piceous: female larger than the male: oviduct shorter than the abdomen.

In the Cabinets of Mr. Stephens and Mr. Stone.

Although there are a considerable number of minute species with transparent wings which are comprised in the genus

Bracon, it will be found that they do not well agree with the characters of the larger ones with opaque wings, which appear to be universally distributed, being found as far south as the Cape of Good Hope, from whence we receive a variety of beautiful species; on the continent of Europe there have been several detected, but we can claim but one at present in this country.

Mons. Latreille has observed that the mouth is produced in the form of a rostrum, like *Agathis:* it appears to me that the lip and maxillæ unite, so as to form a short proboscis; but this is not easily discoverable in dead specimens, except by dissection. The same author has described the labial palpi as 4-jointed, but I am inclined to agree with Fabricius, that they have only 3 joints. I would wish here to remark, that the costal nerve is continued round the wing, and not terminated near the apex, as is common with the Ichneumonidæ; that the submarginal cells are complete, but the last transverse nerve is less strong than the others, especially in the female; and that the 1st submarginal and two discoidal cells, which are nearly of equal size, form a regular line across the superior wings: indeed so great are the differences of structure, as well as economy of *Bracon* and its congeners, that it is probable when further investigated and better understood, they will be found to form a natural and extensive family.

The male of *Bracon Denigrator*, it is presumed, is very rare even upon the continent, otherwise it would have been figured with the other sex. That which is here represented, was taken last year in Birchwood, Kent, and is now in the possession of Mr. Stone; and the only female that I have seen, was captured by the Rev. W. Kirby, and is now in Mr. Stephens's fine collection. Panzer in his *Fauna Germanica*, *fasc.* 45. *n.* 14. has figured this sex.

Fabricius says, that it frequents gardens upon the continent, where it appears to be not uncommon; and Latreille informs us, that the female deposits her eggs in the fruit of plants, especially thistles.

The plant figured is *Cichorium Intybus* (Wild Succory).



BASSUS CALCULATOR.

ORDER Hymenoptera. FAM. Ichneumonidæ *Lat.*, *Leach.*

Type of the Genus B. Calculator *Fab.*

BASSUS *Fab.* Ichneumon *Fab.*, *Lat.*, *Jur.*, *Panz.*

Antennæ setaceous, more slender in the males than in the females, inserted towards the top of the face, distant, many-jointed, 1st joint robust curved, 2nd small turbinate, 3rd longer than the 1st, the following decreasing in length to the apex, covered with short coarse hairs (fig. 1).

Labrum transverse, slightly narrowed before, with a triangular, membranaceous, hairy tongue, projecting from beneath (2).

Mandibles very thin coriaceous, small, somewhat elongated, acute, bifid, hairy externally (3).

Maxillæ membranaceous, internal lobe covered with short hair at the extremity, external lobe rounded, ciliated: *Palpi* pilose, composed of 5 long joints, 2 first joints robust, 3rd the longest, 4th and 5th slender (4).

Mentum nearly quadrate-elongate (5 a): *Palpi* hairy, 4-jointed, 2 first joints more robust than the two following (b): *Labium* nearly cylindric entire, divided down the middle above (c).

Head *transverse, as broad as the thorax.* Ocelli 3. Thorax *ovate, elevated, long, somewhat attenuated anteriorly.* Abdomen *scarcely petiolated, not longer than the head and thorax, oblong, somewhat depressed, shining, composed of few joints in the males; more cylindric, somewhat arcuated in the females* (6). Oviduct *exserted, as long as the body.* Wings *alike in both sexes, superior with one narrow oblique marginal cell; submarginal cells* 3, *1st incomplete, 2nd very minute, 3rd very large, discoidal cells* 2, *of nearly equal size, inferior one incomplete; stigma large; inferior wings small linear.* Legs; *anterior small, posterior long robust.* Tibiæ *spurred.* Tarsi *5-jointed, basal joint very long, 4th minute.* Claws *small simple* (8 *a fore leg*).

CALCULATOR *Fab. Ent. Syst. suppl. p.* 225. *n.* 131. *Syst. Piez. p.* 98. *n.* 21. Calculatorius *Panz. Faun. Germ.* 83. *tab.* 13. *fem.*

Black, shining. Thorax, scutellum, 4 anterior legs and trophi brick-colour: metathorax deeply punctured; basal and 2nd segments of abdomen deeply and longitudinally channelled: apex of posterior thighs ferruginous, base of posterior tibiæ dirty white. Wings very pale-fuscous, iridescent: stigma and nerves brown: anterior coxæ in the male, brick-colour.

In the Cabinet of the Author,

Neglected as this extensive family has been, it is not to be wondered at that we are but ill-acquainted with the affinities and economy of many of the groups composing it: as every fact is therefore rendered the more valuable, I have the greater pleasure in presenting my readers with the present species, which I captured in the New Forest about a mile to the north of Lyndhurst. We were resting ourselves about noon in the early part of September 1822, whilst the sun shone very powerfully, when I observed one of these pretty insects flying over the flat surface where a tree had been felled, upon which it settled; and shortly after two others appeared. They all hovered over the block and at intervals lighted upon it, but I could not observe that the female deposited any eggs; and knowing it to be a rare insect, new to Britain, I was fearful of losing it, which prevented me from further observing its operations. I consider myself most fortunate in capturing both sexes, as the males of this family are very seldom known; and Panzer having only figured the female, the male is here represented in preference, and the body of the female is given at the bottom of the plate.

Latreille's genus *Ichneumon*, comprising most of the genera into which Fabricius had divided it (although very imperfectly), must be considered as a family, since it is impossible to include insects in the same genus so widely different as *Peltastes* (plate 4.) and our present subject, *Bassus;* and although the long exserted ovipositor gives it the appearance of a *Pimpla*, it will be found to be much more nearly allied to *Microgaster* and *Agathis*.

There are probably about 15 British species in our cabinets allied to that figured, but I think only 4 or 5 of them perfectly agree with our type, and I believe none of their names have yet been ascertained.

Vaccinium Myrtillus (Bilberry), growing in abundance where the insect was taken, has been selected for the plate.



MICROGASTER ALVEARIUS.

ORDER Hymenoptera. FAM. Ichneumonidæ *Lat.*, *Leach.*

Type of the Genus, Ichneumon globatus *Linn.*

MICROGASTER *Lat.*, *Ill.*, *Spin.*, *Leach.*—Cryptus & Ceropales *Fab.*—Bassus *Panz.*—Ichneumon *Linn.*, *Fab.*

Antennæ inserted between the eyes, above the middle of the face, approximating, filiform, very pubescent, composed of 18 joints or upwards, basal joint the most robust, 2nd subglobose, 3rd and following long, appearing like 2 joints united, terminal joints subglobose, the last conical (fig. 1. the basal and terminal joints).

Labrum transverse-ovate, pilose, ciliated, base emarginate, anterior margin straight (2).

Mandibles small, subtrigonate, externally pilose, bifid at the apex which is acute, the lower tooth being blunt (3).

Maxillæ rather long and meeting below the mentum, terminated by two very distinct lobes, the internal one somewhat transverse or lateral, the external large, elongate-ovate and very pilose. *Palpi* very long and pilose, 5-jointed, 2 first joints the most robust, basal joint rather the shortest, 2nd a little the longest, 3rd rather shorter, 4th and 5th slender, the latter as long as the 3rd; the former shorter (4).

Mentum subobconic. *Lip* membranous subcylindric, the sides nearly meeting above, pubescent and ciliated. *Palpi* long, inserted at the anterior angles of the mentum, triarticulate pilose, basal joint the shortest and rather the most robust, 3rd a little the longest, subfusiform (5).

Head *orbicular, transverse.* Eyes *not large, lateral.* Ocelli 3, *large and very prominent.* Thorax *globose and rather gibbous.* Abdomen *attached by a small portion of its base, but appearing sessile, short, flat on the back and rugose at the base, compressed beneath in the females,* 8*-jointed, furnished below the apex with two flat pilose valves and with a sheath below, producing an* Oviduct *composed of an incurved horny and sharp sheath, containing* 2 *fine bristles* (6). Wings *pubescent, with a strong costal nervure and large stigma;* 3 *discoidal cells and a subtriangular areolet* (9), *sometimes imperfect.* Legs *robust, posterior very long.* Coxæ, *hinder pair very large.* Tibiæ *spurred.* Tarsi 5*-jointed, basal joint the longest.* Claws *and* Pulvilli *small.*

ALVEARIUS *Fab. E. S. Supp.* 232, 232.—bicolor *Curt. Guide, G.* 554. 5.

Brightish ochre, clothed with very short pubescence. Eyes and ocelli black. Postscutellum black and punctured. Abdomen black and shining, 1st and 2nd joints rugose and pale at the sides, an orange spot at the base, and one on each side at the middle, the underside is ochreous at the base. Superior wings with the costa and stigma fuscous, the nervures paler, the areolet imperfect. Hinder thighs and tibiæ at the apex, their tarsi, and all the claws and pulvilli, blackish.

Obs. The antennæ are sometimes fuscous, and the 2 orange spots on the body very obscure.

In the Author's Cabinet.

This natural group, which was distributed by Fabricius, has been formed into a genus by Latreille, but has never been described as British. Like the rest of the Ichneumonidæ these small insects deposit their eggs in lepidopterous larvæ, and one of them is particularly useful in destroying the caterpillar of the Cabbage Butterfly (*Pontia Brassicæ*). There must occasionally be myriads of these little Ichneumonidæ, for we frequently see large clusters of beautiful silky cocoons attached to a single caterpillar, and those whose cases form a sort of honey-comb produce vast quantities.

Microgaster is nearly related to Bracon and Bassus. The following British species may be thus divided.

I. Areolet perfect.

1. M. deprimator *Fab. Supp. p.* 227.—*Panz.* 79. 11. *fem.*—Middle of August, Dover. Bred September out of the larvæ of *Acronycta Salicis*. The larvæ were only half-grown when 2 maggots came out of two of them, and formed cocoons in August; in the following May another hatched.
2. M. globatus *Linn. F. S. n.* 1645.—*Reaum. t. 2. pl.* 35. *f.* 2—5.—Beginning of September, Isle of Wight.
3. M. sessilis *Fab. E. S. p.* 194. 4.—*Coq. tab.* 4. *f.* 8.—Middle of July, Dover.
4. M. annulipes *Curt. Guide.*—dorsalis *Spin.?*—Beginning of June, Coomb-wood; beginning of August bred by Mr. C. Fox, from white cocoons out of a Bombyx caterpillar.
5. M. auriculatus *Fab. Piez.* 69. 82?—*Spin. Ins. Lig.* 2. 147?

II. Areolet imperfect.

6. M. alvearius *Fab.*—*Curt. B. E. pl.* 321.—*Reaum.* 2. *tab.* 35. *f.* 7.—The only specimens I have ever seen of this beautiful species, were bred from honey-comb cells by my brother. The areolet in some is not so imperfect as in others.
7. M. glomeratus *Linn. F. S. n.* 1646.—Platygaster ovulorum *Mag. Nat. Hist. v.* 3. *p.* 51.—The beginning of July I bred 20 or 30 from little yellow cocoons, that I found sticking to a caterpillar of *Hipparchus papilionarius*, but it is generally found upon the larvæ of *Pontia Brassicæ*; and the reader is referred to Loudon's "Magazine of Natural History" for the history and admirable figures of this insect.
8. M. vitripennis *Curt. Guide.*—Like the preceding, the nervures stronger, and the hinder thighs tipped with brown.
9. M. lacteipennis *Curt. Guide.*—Black: wings milky white, stigma and costa piceous, anterior tibiæ and tips of their thighs ferruginous. Middle of August, Dover.
10. M. tibialis *Curt. Guide.*—Black: legs ochreous, middle and hinder thighs and tarsi piceous: wings subfuscous.
11. M. lineola *Curt. Guide.*—Like the preceding, the hinder thighs with a piceous line above and below, and the tips of the tibiæ piceous. Wings transparent. Out of larvæ of *Scæva Pyrastri.*
12. M. gracilis *Curt. Guide.*—Black: legs pale ochreous, middle and hinder thighs, tips of tibiæ and tarsi piceous. Bred in September from cocoons found upon grass, by the Hon. C. Harris.
13. M. atrator *Curt. Guide.*—Black: tibiæ and tarsi ochreous, hinder ones brownish.
14. M. Aphidum *Linn. Faun. Suec. p.* 410. *n.* 1643.
15. M. anomalon *Curt. Guide.*—Black, body very short and compressed, tips of anterior thighs and tibiæ ochreous.

The plant is *Vicia sativa* (Common Tare).






9
10
3
4
5

476.

LEIOPHRON APICALIS.

Order Hymenoptera. Fam. Ichneumonidæ. Braconidæ

Type of the Genus, Leiophron pallipes *Curt.*

Leiophron *Nees, Curt., Hal.*—Cryptus *Fab.*

Antennæ inserted in front of the face, as long as the wings in the male, and composed of from 26 to 17 joints; shorter in the female, and composed of from 21 to 16 joints, filiform and pubescent, basal joint the stoutest, 2nd globose, 3rd slender, longer than any of the following, which decrease in length until they become nearly cup-shaped, the apical joint ovate-conic (1).

Labrum transverse-oval, with a membranous ciliated margin and an elongate-trigonate pubescent lobe in the middle (2).

Mandibles curved, slender, cleft at the apex, slightly pilose externally (3).

Maxillæ terminated by a rounded hairy lobe with a minute one on the inside. *Palpi* long pilose and 5-jointed, 1st 3rd and 5th joints the longest, 2nd the broadest, very pilose, 4th the shortest, 5th slender subfusiform (4).

Mentum oblong, rounded at the base, truncated before. *Lip* short pubescent subcordate. *Palpi* as long as the mentum, pilose, triarticulate; basal joint slightly clavate, 2nd subovate, 3rd a little longer subfusiform (5).

Head *subglobose, transverse.* Eyes *large and lateral.* Ocelli 3, *large and prominent on the crown of the head.* Thorax *elongate-ovate;* neck *narrowed:* scutellum *semiorbicular.* Abdomen *ovate-conic, not larger than the thorax; attached by a broad sulcated* peduncle, *narrowed at the base, the sides sometimes slightly sinuated; 2nd joint large campanulate:* ovipositor *concealed.* Wings, *superior with a large trigonate stigma, the marginal cell short, semilunate;* 2 *large discoidal and no submarginal cells* (9). Legs *moderately long stout and simple:* tibiæ *with small spurs at the apex:* tarsi 5*-jointed, basal joint the longest, 4th the shortest, 5th a little broader:* claws *and* pulvilli *distinct.*

Apicalis *Curt. Guide, Gen.* 549. 7.

In the Cabinets of Mr. Walker, Mr. Haliday and the Author.

This genus was established by Nees von Esenbeck, who placed it between Perilitus (which follows Aphidius) and Bracon; and Mr. Haliday, in his learned Essay on the Parasitic Hymenoptera, locates it between the same groups. Our Leiophrons are easily distinguished from the other *Ichneumones minuti*, by the extremely short and sublunar marginal cell, although they are undoubtedly closely allied to the Braconidæ.

Inhabit the South [illegible]

I shall describe the few species recorded in my Guide, as well as two others, and regret that space will not allow me to add some that Mr. F. Walker has obligingly transmitted to me. Mr. Haliday calls his division A. PYGOSTOLUS, of which *Crypus sticticus* Fab. is the type; it is characterized by "the radial areolet just touching the apex of the wing." The next is B. Radial areolet very short, semilunate.

a. Abdomen sessile.

Type L. mitis *Haliday's MSS.*

b. Abdomen petiolated. * Petiole striated.

1ª. L. Orchesiæ *Curt.*—1⅔ line. Antennæ 26-jointed in the male? Black, shining: antennæ (excepting the last 10 joints), head and legs ochreous; eyes and crown of head black, leaving a bright ochre orbit: postscutellum thickly punctured: posterior coxæ piceous; wings very transparent, the stigma piceous, excepting the interior angle.

This fine species was bred, I believe, by Mr. Walker, from pupæ of *Orchesia micans* (folio 197ª).

1. L. pallipes *Curt.*—1½ line. Antennæ of male 24-jointed, of female 21. Black shining, head and thorax punctured, postscutellum rugose: antennæ pale castaneous or ochreous at the base: legs deep ochre; stigma pale piceous.

2. L. picipes *Curt.*—1 line. Antennæ 16-jointed. Black shining, postscutellum dull and rugose; abdomen antennæ and legs piceous, the latter gradually growing paler from the thighs, the tips of which, as well as the tibiæ and tarsi of the anterior pair, are more or less ochreous; stigma pale piceous.

3. L. nitidus *Curt.*—Similar to No. 2, but narrower; the antennæ are rather stout, castaneous brown, ochreous at the base, legs ochreous, posterior thighs and tibiæ, excepting the base of the latter, brown.

4. L. similis *Curt.*—Like No. 2, but the antennæ are longer, with the 4 basal joints ochreous as well as the legs, the posterior being a little the darkest.

** Petiole punctured and indistinctly striated.

5. L. fulvipes *Curt.*—⅔ line. Piceous shining: antennæ 16-jointed, brown, the base ochreous; postscutellum punctured; wings pale fuscous; legs ochreous.

6. L. pallidistigma *Curt.*—¾ line: piceous shining: antennæ 16-jointed, longer than in the foregoing and ochreous, as well as the legs; postscutellum shining, sparingly punctured: stigma pale ochreous.

6ª. L. basalis *Curt.*—Similar to No. 6, but the base of the abdomen is ferruginous-ochre, and the scutellum dull and thickly punctured, or reticulated. I took a specimen b. of June, in the New Forest.

7. L. apicalis *Curt. B. E. pl.* 476. ♂. Antennæ 17-jointed in the male, 16 in the female; shining ochreous; tips of antennæ and pulvilli brown: eyes green: ocelli piceous; postscutellum punctured, piceous in the female; petiole long and nearly linear, slightly angulated at the middle; posterior portion of abdomen piceous: stigma pale, with a brown patch at the extremity.

This pretty species, as well as Nos. 1, 2, 4, 5, and 6, Mr. Walker took at Southgate.

The Plant is *Lysimachia Nummularia* (Money-wort).



415.

ZELE ALBIDITARSUS.

ORDER Hymenoptera. FAM. Ichneumonidæ Alysiidæ *Curt.*

Type of the Genus, Zele testaceator *Curt.*

ZELE *Curt.*

Antennæ inserted at the upper part of the face between the eyes, longer than the body, setaceous and pubescent, composed of numerous joints, basal joint the stoutest, ovate-truncate, 2nd small subglobose, 3rd long, the remainder decreasing in length to the apex, the last joint conical (1, a few joints of the base and apex).

Labrum inserted under the clypeus, membranous, semicircular and pilose (2).

Mandibles closing transversely, curved and rather slender, bifid near the apex, the external tooth being the longest; externally pilose (3).

Maxillæ small, terminated by a large pilose lobe with a small one on the inside. *Palpi* very long, pilose and 6-jointed, basal joint short, 2nd and 3rd nearly of equal length, the latter the stoutest and very convex on the inside, the remainder slender, 4th and 6th the longest, 5th a little shorter (4).

Mentum obovate, pilose. *Palpi* rather long, stout pilose and 4-jointed, basal joint not short, obovate-truncate, 2nd a little longer, elongate-ovate, 3rd subglobose, 4th as long as the 2nd but narrower and subclavate. *Lip* large subcylindric, pubescent, truncated obliquely, the anterior margin notched (5).

Head *rather broad.* Eyes *oval rather prominent.* Ocelli 3 *in triangle, elevated on the crown of the head.* Thorax *rather long and narrow.* Abdomen *rather short, subfusiform, striated at the base, attached by a short stout peduncle; clavate in the female and slightly compressed at the apex, and truncated obliquely, with 2 minute appendages towards the apex.* Ovipositor *exserted, robust, considerably shorter than the body* (6). Wings *very ample; iridescent, superior with* 1 *marginal,* 3 *submarginal and* 2 *discoidal cells, the stigma large; inferior with* 2 *basal, one costal and* 4 *external cells.* Thighs *simple.* Tibiæ, *anterior with a long spine at the apex, the others furnished with* 2 *long spurs.* Tarsi 5-*jointed, basal joint the longest.* Claws *small;* pulvilli *distinct.*

ALBIDITARSUS *Curt. Guide, Gen.* 551. 4.

Piceous, shining: antennæ beneath brown, the 2 basal joints ochreous: head ochreous, the whole crown piceous; eyes black: thorax inclining to castaneous, margin of scutellum ochreous: abdomen subcastaneous towards the base and apex, the base vermiculated. Wings stained yellowish brown, squamulæ pale ochre, nervures and stigma brown, the latter pale in the centre. Legs testaceous; posterior tibiæ (except at the base,) and pulvilli piceous; posterior tarsi yellowish white.

In the Author's Cabinet.

From the great resemblance these insects bear to the Braconidæ, I placed this group in my Guide between Bracon and Agathis, but it is evident from the 6-jointed maxillary palpi that it belongs to that extensive sub-family which may now be termed Alysiidæ. The typical species are characterized by a perfect trapezoid cell on the costal margin of the inferior wings, and also by the minuteness of the 3rd joint of the labial palpi.

The following are British species, and Mr. F. Walker has several others which he found on grass in meadows at Southgate in the summer, and in the Isle of Wight in September.

* Inferior wings with a costal cell.

3. Z. testaceator *Curt.*—4 lines long. Ochraceous, eyes and spaces between ocelli black: ovipositor fuscous, stigma yellow; posterior tarsi dirty white.
End of July, Coomb Wood and Regent's Park.

4. Z. albiditarsus *Curt. Brit. Ent. pl.* 415. ♂.
Taken in the Regent's Park. J. C.

** Marginal cell of inferior wings wanting.

2. Z. ochraceator *Curt. Guide.*

5. Z. Ephippium *Curt.*—2 lines long. Bright ochre; antennæ, tips of posterior tibiæ and of the tarsi, also the ovipositor brownish: eyes and space round ocelli black: thorax reddish; a spot before, the metathorax and base of the abdomen black, nervures and stigma piceous in the male, lurid in the female.

My attention was first called to the remarkable œconomy of this species by a most accurate observer of nature, Mr. John Bolt of Lyndhurst; the cocoon is attached by a thread to a leaf as represented in the Plate, and the insect is hatched in July: it is generally found on the Hazel, on which I have taken it in Coomb Wood. I was a little surprised to find that one of the cocoons produced *Hemiteles areator* Panz.

7. Z. pectoralis *Curt. Guide.* 8. Z. fulvifrons *Curt. Guide.*

9. Z. thoracicus *Curt.*—Male $2\frac{3}{4}$ lines: black shining, disc of thorax reddish, legs pale ochre.
July 16th Regent's Park.

*** Antennæ shorter than the body.

1. Z. atrator *Curt.*—$1\frac{3}{4}$ line. Piceous black; antennæ beneath at the base ochreous; palpi pale ochre, legs dirty ochre, base of posterior tibiæ whitish, ovipositor as long as the antennæ, wings hyaline.

I took several last September on the windows of Durnford House, Wilts, the seat of the Honourable Mrs. Robinson.

10. Z. longicauda *Curt.*—Similar to the last, but the ovipositor is twice as long, and the central submarginal cell of the upper wings is wanting.

The Plant is *Smyrnium Olusatrum* (Alexanders).



Carex remota.

672.

CHELONUS WESMAELII.

ORDER Hymenoptera. FAM. Ichneumonidæ.

Type of the Genus, Ichneumon oculator *Fab.*

CHELONUS *Jur., Panz., Nees, Wesm., Curt.*—Sigalphus *Lat.*

Antennæ inserted near the top of the face, approximating, scarcely so long as the body and 28-jointed in the male; not longer than the thorax and 24-jointed in the female, rather stout and tapering very much at the apex, basal joint long and stout, 2nd subglobose, 3rd nearly as long as the 1st, the remainder decreasing and becoming turbinate towards the apex (1, a few joints).

Labrum inserted under the clypeus, sublunate, the anterior margin straight and pilose, with a large membranous lobe beneath, projecting beyond the labrum (2).

Mandibles rather small, trigonate, hairy and bifid (3).

Maxillæ terminated by an obovate coriaceous lobe, and a smaller internal membranous one, both ciliated. *Palpi* long, slender, pubescent, pilose and 6-jointed, basal joint the shortest, clavate, 2nd longer and stouter, 3rd the stoutest, long and clavate, 4th a little the longest, slender and nearly linear, 5th and 6th shorter and slender (4).

Mentum elongated, ovate at the base. *Lip* moderately long, hollow. *Palpi* not short, pubescent, pilose and 4-jointed, basal joint elongate-clavate, 2nd as long and stouter, 3rd short, stout, obovate, 4th as long as the 1st, slender, apex conical (5).

Head *transverse, base concave, face suborbicular:* eyes *rather small, lateral, ovate and pubescent:* ocelli 3, *forming a compact triangle on the crown.* Thorax *subglobose or oblong:* scutel *triangular:* metathorax *rugose, and toothed at the angles.* Abdomen *elongate-ovate, clavate* (A), *the basal joints united and forming a rough shield, the sides and apex inclosing a deep cavity beneath like a wooden shoe:* oviduct *short, arising from a trigonate valve and not projecting beyond the apex* (0). Wings *ample, superior with* 1 *marginal,* 3 *submarginal and* 1 *discoidal cell.* Legs *moderate:* thighs *and* tibiæ *short, the latter more or less clavate and spurred:* tarsi *slender and* 5-*jointed:* claws *and* pulvilli *distinct.*

WESMAELII *Curt. Guide, Gen.* 556.

THIS group of insects, rendered remarkable by the absence of abdominal segments, is thus characterized by Nees ab Esenbeck in his *Hymen. Ichn. affin. v.* 1. "Labial palpi 4-jointed: mandibles bifid: abdomen covered with a cuirass, the 3 basal segments united." Wesmael in his *Mon. des Bracon. de Belg.* has divided this group into other genera, which I have adopted in my "Guide," and shall here give his definitions. Besides the following 13 indigenous species there are 10 others recorded.

546[b]. RHITIGASTER Wesm. *Abdomen with the cuirass composed of* 3 *segments: radial cell elongate:* 3 *cubital cells, 2nd elongate-quadrate.*

1. Irrorator *Fab.—De Geer,* 1. *p.* 577. *tab.* 36. *f.* 12. 13.

The larva lives upon the Caterpillars of *Noct.* (*Acronycta*) *Psi*, not *N. pyramidea.*

546c. Ascogaster Wesm. *Eyes smooth: a subtrigonate radial and 3 cubital cells, the 1st separated from the external discoidal cell by a distinct nervure.*

* The cuirass in 3 distinct pieces: entirely open beneath.

1. rufescens *Lat.*—dentator *Panz.* 88. 14.
14th Aug. off rushes, Stilton Fen, Mr. Dale.

** The cuirass of one piece, the sides bent under the body.

2. Consobrinus *Curt. G. 1st edit. no.* 10. Slender like *A. rufipes.* Black; antennæ 33-jointed, brown, underside at base, trophi and legs ochreous, hinder legs with the coxæ blackish at the base; apex of thighs of tibiæ and tips of all the tarsi fuscous: metathorax 4-toothed: wings brownish on the disc, with a white transverse line, stigma and nervures pale brown: length 1¾ line.

3. pallidicornis *Curt. Guide, 1st edit. no.* 6. Blackish; antennæ 32-jointed, underside ochreous to the middle: thorax 4-toothed: legs ochreous, coxæ, underside of anterior thighs and the whole of the others, excepting the extreme base and apex, terminal portion of hinder tibiæ and all the tarsi, pale piceous: in stature and wings like No. 2.

4. quadridentatus *Wesm.* June, Shotover near Oxford.

5. varipes *Wesm.* & 6. instabilis *Wesm.* I possess.

7. fulviventris *Curt. Guide, 1st edit. no.* 9. is I believe only a *var.* of *A. instabilis*, with the back of the abdomen subferruginous, the apex fuscous, the underside entirely ochreous.

8. Esenbeckii *Curt.*—pulchellus *Guide, 1st edit. no.* 8. Black, head large, palpi fuscous; antennæ very long, of 39 joints, tapering greatly to the apex, basal portion ferruginous, 1st joint piceous above: thorax bidentate: abdomen ochreous, a dot at the base, a line across the middle, and the apical portion brown: wings fuscous, basal half white, with the nervures ochreous: legs black, tips of anterior thighs and all the tibiæ, except the apex of the hinder, bright ochreous: 2¼ lines.
July, off grass in meadows, Glanville's Wootton, Mr. Dale. I have named it in honour of the Professor to whose able works both entomologists and botanists are so greatly indebted.

556. Chelonus. Vide the characters on the preceding page.

1. oculator *Fab.*—*Panz.* 72. 3. Common on umbellate flowers, grass, sedges in ditches from July to September.

7. Wesmaelii *Curt.* Black, pubescent, head punctured, trophi ochreous; antennæ setaceous, as long as the body and 34-jointed; thorax strongly reticulated, metathorax with 2 short teeth at the angles: abdomen reticulated, orange, with a triangular black spot at the base, nearly reaching a black dorsal stripe, arising from the apex, which is black: wings fuscous with a white horseshoe line round the stigma, which is brown as well as the nervures: legs bright ochreous, coxæ and trochanters piceous, tips of hinder thighs, tibiæ, and all the tarsi, except the basal joint, fuscous.
This male I took at Tollsbury the end of July, and have named it after the Professor whose monograph has essentially assisted me in the investigation of this tribe.

8. basalis *Curt.* Black, minutely punctured, pubescent: antennæ 16-jointed; metathorax bituberculate, with 2 carinæ down the back, slightly toothed at the apex: base of abdomen ochreous: wings slightly fuscous; stigma large and darker: legs black, tips of anterior thighs, tibiæ and base only of hinder ochreous: not 1 line long.
For this species I am indebted to F. Walker, Esq.
The Plant is *Carex remota*, from T. C. Heysham, Esq.



512.

ROGAS BALTEATUS.

ORDER Hymenoptera. FAM. Ichneumonidæ.

Type of the Genus, Bassus testaceus *Fab.*

ROGAS *Nees, Hal., Curt.*—Bassus *Fab.*—Bracon *Spin.*

Antennæ inserted near the middle of the face, as long as the insect, filiform, pubescent, composed of numerous oblong joints, gradually decreasing in size to the apex; basal joint the stoutest, 2nd the smallest, subglobose, apical joint conical (1, the base and apex).

Labrum rather large, subovate, with a membranous pubescent triangular lobe at the apex (2).

Mandibles small, trigonate and bifid, pilose outside (3).

Maxillæ with a large lobe on the inside, and another rounded and hairy one above it. *Palpi* long pubescent pilose and 6-jointed, basal joint minute, 2nd twice as long and oblong, the remainder long, 3rd a little the shortest, 4th the longest, the apical joint subfusiform (4).

Mentum ovate-cordate. *Lip* large and rounded. *Palpi* rather long, very hairy and 4-jointed, basal joint small, the remainder rather thick and of equal length, suboval, the terminal joint conical at the apex (5).

Head *small, transverse, margined behind,* face *subtrigonate:* eyes *rather small, ovate and lateral:* ocelli 3, *in triangle on the crown.* Thorax *oblong:* postscutellum *subquadrate and somewhat depressed.* Abdomen *attached by so short a peduncle as to appear nearly sessile, elliptical, 1st and 2nd joints large, 3rd generally a little shorter* (6 ♀ *profile*): ovipositor *short and exserted, the valves rather broad and obtuse* (o). Wings *pubescent, superior with a large marginal and 3 submarginal cells, 2nd the smallest and nearly quadrate;* posterior *with 2 transverse nervures.* Legs, *posterior the largest:* tibiæ *simple, spurred:* tarsi 5-*jointed, basal joint the longest, 4th the smallest:* claws *minute;* pulvilli *distinct.*

Obs. R. bicolor *Spin.* was the species dissected and described.

BALTEATUS *Hal. MSS.—Curt. Guide, Gen.* 555.

Opake ferruginous-ochre, pubescent: antennæ longer than the insect, black as well as the head, the hinder margin of the eyes ferruginous: Thorax inclining to rufous, black beneath, a black dot on each scapular and a spot of the same colour at the apex of the scutellum; postscutellum coarsely and thickly punctured, black, with a bilobed rufous spot behind: abdomen punctured, with an elevated line down the back, the apical portion black, excepting the base of the 3rd segment: nervures brown, base of stigma ochreous: tips of hinder thighs and tibiæ and all the tarsi brown, the latter black at the apex.

In the Cabinet of Mr. Haliday.

THIS pretty genus contains a considerable number of species, many of which have been added by Mr. Haliday, who has kindly presented me with several, together with a list of them.

They are characterized by a small head, long antennæ, sessile and opake abdomen, &c.

10. R. dispar *Hal.*

The sexes are very dissimilar in shape and colour, the male being slender, the female having a white ring round the middle of the antennæ, which are black, rufous at the base.

On Larches in Autumn, Mr. Haliday; and the female has been taken by Mr. Dale.

3. testaceus *Fab.* Taken in Ireland by Mr. Haliday as well as No. 8.

4. ochraceus *Curt.*

This species is the largest I have seen; it is entirely ochreous, excepting the apex of the antennæ, the eyes, ocelli and tips of tarsi.

Beginning of August in the Regent's Park, J. C.

1. ater *Curt.* Black, opake, orbits of eyes and legs ferruginous.

Beginning of June, damp places, Shotover near Oxford, J. C.; and at Southgate, Mr. F. Walker.

2. bicolor *Spin.* Lulworth, Mr. Dale; and Dover, J. C.

5. Subucola *Curt.* Testaceous, postscutellum and base of abdomen black.

Middle of May, Suffolk, and Woods, Southgate, J. C.

6. similis *Curt.* Ochreous, head, excepting the orbits, sides of thorax, postscutellum, basal joint of abdomen, excepting a spot at the apex, and sides of 2nd segment black.

7th of May and 25th of July, Coomb-wood, Surrey.

11. spathuliformis *Curt.* Macrocentrum, No. 4. of Guide.

Similar to the last and probably the male of it; it is duller, and the apex of the abdomen is fuscous. In Nos. 5., 6. and 11., the 1st submarginal cell is narrower, and the 2nd longer, than in the five preceding species.

Beginning of September, Isle of Wight.

12. balteatus *Hal.—Curt. B. E. pl.* 512.

Taken near the Harbour of Donaghadee, by Mr. Haliday.

7. Gasterator? *Spin.—Jur. pl.* 8. *Gen.* 3.?

I found a specimen the 10th of July, in a meadow at Eccles in Norfolk, similar to the following, but the basal joint of the abdomen is entirely rufous.

8. nobilis *Hal.* "Black, shining, pubescent, mouth collar and legs reddish-ferruginous, apex of posterior thighs and tibiæ, and all the tarsi black; abdomen rugose, rufous, 1st segment with a black spot at the base, posterior portion smooth shining black, with golden pubescence.

On Umbelliferæ near Holywood, Mr. Haliday; Monk's Wood, Mr. Dale.

9. rugulosus *Ess.* Taken by Mr. Haliday in Ireland.

The Plant is *Iberis* (*Teesdalia*) *nudicaulis* (Naked-stalked Candy-tuft), communicated by W. W. Saunders, Esq.



Daphne mezereum



507.

HECABOLUS SULCATUS.

Order Hymenoptera. Fam. Ichneumonidæ.

Type of the Genus, Spathius sulcatus *Curt.*

Hecabolus *Hal. MSS.*—Spathius *Curt.*

Antennæ inserted near the centre of the face, approximating, as long as the head and thorax, composed of 24 joints in both sexes, basal joint stout, subovate, 2nd globose, 3rd nearly as long as the 1st and almost linear, the remainder gradually decreasing in length, the apical joint conical (1, the base and apex). *Labrum* undiscovered.

Mandibles stout, subtrigonate, obtusely bifid, with 2 or 3 bristles outside (3).

Maxillæ membranous, with a lanceolate internal lobe, and a larger more ovate and pilose external one. *Palpi* long, rather slender and bristly on the inside, 6-jointed, basal joint minute, 2nd elongate-ovate, the remainder twice as long, scarcely decreasing in length, 3rd and 4th rather stout (4).

Mentum elongate subconic. *Lip* broader and subcordate. *Palpi* rather short, hairy, compressed and 4-jointed, 1st and 2nd joints the shortest and broadest, suborbicular. 3rd and 4th joints longer and slender, the former subclavate, the latter conical at the apex (5).

Head *spherical:* eyes *rather small and globose:* ocelli 3 *in triangle on the crown of the head.* Thorax *elongate-ovate.* Abdomen *clavate, gradually attenuated to the base, having no petiole:* ovipositor *longer than the insect.* Wings *pubescent and ciliated,* superior *with a thickened stigma, a long marginal cell, a rhomboidal and a long submarginal one, and a discoidal cell equal in size to the 1st submarginal one:* inferior *wings with* 2 *longitudinal nervures and* 2 *or* 3 *radical cells, the male having a thickened stigma near the base* (9 ♂). Legs *moderate, posterior a little the largest;* thighs *a little incrassated and clavate:* tibiæ *short and simple:* tarsi 5-*jointed, basal joint the longest, 4th the smallest,* claws *and* pulvilli *distinct* (8).

Sulcatus *Curt. Guide, Gen.* 545ª. 5.

Pitchy shining black, antennæ pale ferruginous, dusky towards the apex, a ferruginous spot sometimes behind each eye; disk of the thorax, postscutellum, 2 first joints of abdomen and the base of the 3rd finely striated with minute punctures between the lines, 2nd joint in the female more or less ferruginous and the ovipositor deep ochreous, tips of the sheaths black: wings iridescent, nervures and stigma piceous: legs ferruginous brown, upper side of thighs darker as well as the tips of the tarsi.

In the Cabinets of Mr. Rudd and the Author.

Hecabolus is evidently nearly allied to Spathius, in which group it is included in the Guide, but the shorter and stouter antennæ and the absence of the petiole to the abdomen distinguish it from the latter genus; the male is also characterized in a very remarkable manner, having a stigma on the costa near to the base of the inferior wings, similar in substance and colour to those in the upper wings, and filling one of the cells, which is open in the other sex.

Many years since I discovered a female of this curious insect in Norfolk, and afterwards both sexes on a post very much perforated by insects in a Garden at Fulham; they were entering the holes with Heriades (I believe), Pemphredon, Crabro, Ptilinus, &c.

I am also indebted to the Rev. G. T. Rudd for specimens which he found on an old ash post in Yorkshire. He states to me in his letter that they were confined to one spot and post, and were evidently parasitic on the genus Ptilinus, and he has lately informed me that he discovered dead specimens of the Hecabolus in the pupæ-cases (which they completely filled) of *Ptilinus pectinicornis*, and also the *Cheiropachus quadrum* (*Cleonymus maculipennis* of this work, folio 194.) in profusion in the pupæ-cases of *Hylesinus Fraxini*, thereby confirming the remarks made by Mr. Cooper in the Entomological Magazine.

For specimens of the rare plant figured, *Daphne Mezereum* (The Mezereon), I am indebted to J. C. Dale, Esq., who procured them the beginning of last April from Cranbourn Chase, Dorsetshire.


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ALYSIA APII.

ORDER Coleoptera. FAM. Ichneumonidæ *Lat.*, *Leach.*

Type of the Genus Ichneumon Manducator *Panz.*

ALYSIA *Lat., Leach.*—Ichneumon *Panz.*—Cryptus *Fab.*—Bracon *Jur.*—Cechenus *Ill.*

Antennæ inserted in front of the face, long, slender, submoniliform, pubescent, containing from 30 to 50 joints, basal joint obovate robust, 2nd globose, 3rd slender, 4th and following subquadrate, terminal ovate (fig. 1 a).

Labrum triangular, pilose, membranous at the apex (2).

Mandibles remote, lateral, not crossing each other, subquadrate, narrowed towards the base, tridentate at the apex (3 & 1*).

Maxillæ with the lobes coriaceous, external one membranous at the edge, pilose; internal one acute. *Palpi* very long, pilose, 6-jointed, basal joint short slender, 2nd short robust, 3rd and 4th long, the former robust, 5th nearly as long as the 6th (4). *Mentum* elongated, emarginate, (5 a). *Palpi* long robust pilose 4-jointed, 2nd joint the thickest (b). *Lip* subcoriaceous, hollow, rounded, broader than the mentum (c).

Head *transverse.* Ocelli 3 *in triangle.* Eyes *small lateral;* (1* *front view of the head*). Thorax *ovate.* Abdomen *attached by a very short peduncle, rugose at the base, slightly depressed in the males, somewhat compressed in the females, 7- or 8-jointed and truncated at the apex.* Oviduct *somewhat robust, in some longer in others shorter than the abdomen,* (6, *abdomen of a female in profile*). Wings *pubescent, the nervure not continued round, with 1 marginal, 3 submarginal, and two discoidal cells* (9). Stigma *sometimes very much elongated.* Inferior wings *with nervures at the base.* Legs, *hinder ones a little the longest.* Tibiæ *simple.* Tarsi 5-*jointed.*

APII *Nobis.*

Black, smooth, shining. Head not very large; trophi ochraceous; antennæ very long pubescent, basal joint beneath and 2nd joint ferruginous. Thorax with a deep fovea between the wings; metathorax punctured. Abdomen piceous slightly pubescent, basal joint rugose punctured, 2nd rufous at the base. Oviduct very short, nearly obsolete. Legs ochraceous, apex of tarsi fuscous. Wings pubescent, very iridescent, superior large; stigma extending the greater portion of the costa, fuscous, nervures of the same colour.

In the Cabinet of the Author.

ALYSIA approaches very near to *Bracon*, especially in the structure of the wings, which are however alike in both sexes; the labial and maxillary palpi have a joint more than those of *Bracon*, and its tridentate jaws so remarkably situated, at once distinguish it from all other genera.

Of this singular genus only one species appears to have been described, and that has never been recorded as British: we have had the good fortune to discover eight others of which we shall give short descriptions, first observing that all, excepting No. 6, are black and shining, with ochraceous legs.

I. Stigma short, subtrigonate.

A Oviduct shorter than the body.

1 A. Manducator, *Panz. Faun. Germ. fas.* 72, *n.* 4, *fem.*—Antennæ very pubescent in the female, rather robust, ferruginous at the base.

2 apicalis *Nob.*—Mandibles black at their apex.

3 similis *Nob.*—Smaller, antennæ black at their base, mandibles entirely ferruginous.

B Oviduct as long as the body.

4 Pratellæ *Nob.*—Black, shining, legs trophi and base of antennæ ferruginous. Head very large. Antennæ very long, slightly pubescent. Stigma narrow.

5 gracilis *Nob.*—Oviduct not longer than the body. Head small, ferruginous next the eyes. Antennæ entirely piceous.

6 pallida *Nob.*—Dull ochraceous, eyes and a spot between them black; metathorax and base of abdomen black; apex piceous; antennæ and nervures of wings fuscous.

II. Stigma elongated.

7 Apii *Nob.*

8 pubescens *Nob.*—Oviduct short, but visible. Smaller than the last, covered with pale pubescence, especially the thorax.

9 minuta *Nob.*—Small, nervures of the wings very strong and black.

A. Manducator is not uncommon upon umbellate plants in meadows, the dung of animals, &c.

A. Pratellæ. Found with some *Cynipsidæ* the end of September in the park of Heron Court, Hampshire, by my esteemed friend the Hon. Charles A. Harris, who discovered them concealed between the collar and gills of very young mushrooms.

A. Apii. For specimens of this insect and their history I am indebted to a lady who found the larvæ feeding upon the parenchyma of celery leaves the 30th Sept.; on the 11th Oct. they had changed to shining oval pupæ of a dull ochre colour, having very much the appearance of a shell (*Turbo Chrysalis* of Turton); the imago appeared the June following.

Our insect receives its specific name from the genus of plants to which it is destructive; and *Apium graveolens* (Wild Celery) being an indigenous species, it is figured in the plate.



CHÆNON ANCEPS.

ORDER Hymenoptera. FAM. Ichneumonidæ *Lat.*, *Leach.*

Type of the Genus, Chænon Anceps, *Hal.*

CHÆNON *Hal., MSS., Curt.*

Antennæ inserted in the middle of the face, approximating, as long as the body, nearly filiform, pubescent, composed of numerous subquadrate joints, basal joint the most robust subovate-truncate, 2nd very short, 3rd the longest (1*a), apical joint obovate (b).

Labrum small sublunulate and ciliated (2).

Mandibles remote, lateral divaricating not crossing subquadrate, terminated by 4 unequal teeth (1 * & 3).

Maxillæ very small, terminated by a suborbicular and pilose lobe, with a longer one inside. *Palpi* very long, pubescent and pilose, 6-jointed, 1st and 2nd joints short, equal in size, 3rd the most robust, the remainder slender, the 4th the longest, 5th and 6th of equal length (4).

Mentum somewhat pear-shaped-truncate. *Palpi* long, rather robust, and pilose, 4-jointed, the 2nd joint a little the longest and stoutest, terminal one elongate-conic. *Lip* hollow, rounded, scarcely broader than the mentum (5).

Head *globose quadrate, face convex.* Eyes *remote, lateral.* Ocelli 3, *large, forming a triangle on the crown of the head* (1* *front view of the head*). Thorax *scarcely broader than the head, very much elongated.* Postscutellum *large semiorbicular.* Abdomen *elongate-ovate narrowed at the base; very much compressed beyond the middle in the female type.* Ovipositor *scarcely visible.* Wings *rather long and pubescent;* superior *with* 1 *marginal,* 2 *submarginal and* 2 *discoidal cells.* Stigma *slightly elongated.* Inferior *wings with several nervures.* Legs, *posterior the longest.* Tibiæ *spurred.* Tarsi 5-*jointed, basal joint the longest,* 4*th the shortest.* Claws *short.* Pulvilli *large* (8, *a fore leg*).

ANCEPS *Hal. MSS.*

Black shining. Mandibles castaneous, black at the extremity. Postpectus rugose, pilose, with a groove down the middle. Abdomen ochreous, with an abbreviated black mark at the base on the back, where it is deeply and coarsely furrowed; in the female the superior edge is black towards the apex. Wings iridescent with a yellow tinge. Stigma and nervures brown. Legs ferruginous ochre. Tarsi and tips of hinder tibiæ fuscous; in the female the hinder thighs excepting the base, the tibiæ and tarsi are blackish.

Obs. The coloured Insect is a female, and fig. 6. the abdomen in profile: fig. 7. is the upper side of the male abdomen.

In the Cabinets of Mr. Haliday and the Author.

Ichneumon 6. 582. Lep.

Since the genus Alysia was illustrated, the present group has been discovered by Mr. Haliday, to whose liberality I am indebted for the species I possess; and Mr. F. Walker has favoured me with his collection, to enable me to arrange and give slight characters of the whole.

The species have been taken by the former gentleman in Ireland, from July to September, in moist meadows, and by the latter near Southgate as early as the end of June. The length of the antennæ is probably only a sexual character, and I suspect the species depart considerably from the type, in the form of the female abdomen, and one is destitute of wings.

1. C. anceps *Curt. Brit. Ent. pl.* 289. July, amongst long grass in drains.
2. C. gracilis *Hal.*—Slender, black; legs testaceous, 4 posterior thighs piceous, tarsi fuscous. Nearly as large as No. 1.
3. C. elegans *Hal.*—Probably a small var. of No. 2.
4. C. viduus *Hal.*—Black, abdomen piceous, anterior thighs beneath and tips of coxæ ochreous.
5. C. obscurus *Curt.*—Similar to No. 4. but smaller: legs ochreous, 4 posterior thighs and tibiæ, except at the base, piceous, tarsi fuscous.
6. C. similis *Curt.*—Smaller; the legs brighter.
7. C. affinis *Hal.*—As large, and more robust, than No. 2: anterior thighs and tibiæ ochreous.
8. C. fuliginosus *Curt.*—Like No. 7, with a rufous spot on the body; the anterior thighs and tibiæ, and the coxæ and tibiæ of intermediate legs, ochreous.
9. C. cingulatus *Hal.*—As small as No. 6: abdomen pale piceous, ochreous in the centre, legs ochreous, thighs and apex of tibiæ of 4 posterior and tarsi, fuscous.
10. C. rufinotatus *Curt.*—More robust, the black and ochre more bright; antennæ, excepting the basal joint, ochreous.
11. C. brevicornis *Hal.*—Antennæ short, ochreous at the base: abdomen piceous, ochreous in the centre: legs bright ochre, apex of 4 posterior thighs, tips of hinder, tibiæ, and tarsi piceous.
12. C. apterus *Curt.*—The smallest. Wings none. Testaceous; head, extremity of antennæ, apex of abdomen, and tips of tarsi, blackish.

The plant is *Lythrum Salicaria* (Purple-spiked Willow-herb).



APHIDIUS CIRSII.

ORDER Hymenoptera. FAM. Ichneumonidæ.

Type of the Genus, Ichneumon Aphidum *Linn.*

APHIDIUS *Nees.—Curt. Guide, Gen.* 547.—*Hal.*—Incubus *Schr.*—Ichneumon *Linn., DeG., Geoff.*

Antennæ inserted in front of the face, scarcely so long as the body, pubescent and in some thickened towards the apex composed of 11 joints (sometimes of as many as 24), basal joint longer and stouter than the 2nd which is ovate, 3rd slender longer than the 1st, the remainder gradually growing thicker, terminal joint the longest and conical. (1, the base).

Labrum undiscovered.

Mandibles subtrigonate, arched, acute, one notched near the apex, externally pilose (3).

Maxillæ terminated by a pilose lobe, with a sublanceolate one on the inside. *Palpi* composed of 4 nearly equal, moderate and pilose joints, basal joint subclavate, 2nd dilated, obovate, 3rd and 4th slenderer, the latter subfusiform (4).

Mentum obtrigonate. *Palpi* short, pilose, triarticulate, basal joint small, 2nd rather longer, 3rd globose-ovate. *Lip* hollow, rounded and pubescent (5).

Head *transverse, the crown broad.* Eyes *rather small.* Ocelli 3 *in triangle.* Prothorax *short.* Scutellum *semioval.* Abdomen *attached by a short and stout petiole, convex and subfusiform in the male ovate-conic in the female.* Wings *pubescent and iridescent,* superior *with few cells, the stigma large* (9), inferior *nerveless.* Legs *slender:* thighs *and* tibiæ *of equal length simple, the latter spurred.* Tarsi 5-*jointed, basal joint considerably the longest in the hind pair.* Claws *minute:* pulvilli *large extending beyond them* (8, *a fore leg*).

Obs. *The dissections were drawn from* A. dimidiatus *Curt.*

CIRSII *Curt.*—Aphidum *Linn. Faun. Suec.* 410, 1643?

Female. Shining pitchy black. Antennæ thickest towards the apex, with the 2nd and 3rd joints dirty ochre: wings transparent, but faintly tinted with brown: the stigma very faint and nearly open: petiole ochreous, broad and short with a tubercle on each side at the base: abdomen short and depressed, piceous, slightly ochreous at the base and apex which is acuminated and bent down, with 2 straight diverging valves beneath (6). Legs dirty ochre, 4 posterior coxæ and thighs piceous, as well as the tibiæ, excepting at the base: tarsi dusky.

In the Cabinet of Mr. A. H. Haliday.

THESE little insects are parasitic, and live in the female Aphides: we sometimes see their horny bronzed cases sticking to the leaves of roses and other plants, with a round hole on one side and the lid frequently hanging like a door on its hinges, as represented in Harris's Exposition, tab. 18. f. 10. from these some of the little Ichneumons or their minuter

destroyers have escaped, for these again have their parasites as we learn from Geoffroy, who states that a Cynips destroys the larvæ of the Ichneumon des Peucerons (Aphidius), and from his description I think it may be my Ceraphron Carpenteri (folio 249[a] No. 10), which I there stated had been bred from the Aphides by the late Mr. Carpenter.

I am indebted to Mr. Haliday for a valuable monograph containing 19 species of Aphidii; and Mr. F. Walker tells me he thinks he has about 50. It being therefore impossible to give specific characters of the whole, I shall avail myself of Mr. Haliday's paper, and give his admirable divisions.

* Wings with 3 cubital areolets (Div. 1. Nees). Radial areolet terminating at the apex. Head small, rather globose. Antennæ shorter than the body of 11 joints in both sexes. Aculeus short compressed, a little curved upwards.

** Wings with one cubital cell effuse to the margin, distinct from the anterior of the disc (Div. 3. Nees). Wings very ample, the radial areolet effuse, including the whole apex. Antennæ and legs long and extremely slender. Head small globular narrowed to the back. Palpi long and slender.

Mr. Haliday has described 4 species of the first division, and 3 of this, but has given no names, and I have none of them.

*** Wings with the anterior cell of the disc and inner cubital confluent and sometimes both together open to the margin (Div. 2. Nees). Head more transverse than in the other divisions. Radial cell terminating at the apex, its interior nervure often vanishing before the apex.

a. Valves of the aculeus compressed, straight or curved upwards, black (Antennæ longer in the males, varying in the number of joints, more numerous in the same sex: middle cell complete or open only to the exterior cubital one).

This division contains A. Pini *Hal.*, the males taken on the larch in Aug. the females on the Pinus sylvestris in Sept. —infulatus *Hal.* on the larch in Aug.—pictus *Curt.* on the Scotch fir, Sept.—dimidiatus *Curt.*—Rosæ, *Hal.?*—picipes *Nees*, infests the Aphides of Hieracium?—fumatus *Hal.*

b. Valves of the aculeus incurved, broad, generally securiform, pale.

† Anus beneath unarmed.

1. The middle areolet defined posteriorly.

Contains two unnamed species.

2. The middle areolet entirely effuse to the margin (species very minute).

Contains two species, and probably A. basalis *Curtis's Guide.*

†† Anus beneath in female armed with 2 diverging horns recurved at the end, longer than the aculeus which lies between them. Middle areolet effuse. Antennæ in the females of 11 joints, rather thicker towards the apex.

Contains A. letifer *Hal.*—A. minutus *Curt.*—A. constrictus *Hal.*, and another.

The insect figured may be the I. Aphidum *Linn.*: but as the specific name has been converted into one for the genus by Nees ab Esenbeck, I have given it the name of 'Cirsii' from its being said to be parasitic on the Aphis Cirsii, so named from its inhabiting Cirsium arvense *Lam.*, the Carduus arvensis of this Work, Pl. 296.

The Plant figured is *Anemone apennina* (Mountain Anemone) from Lord Spencer's park, communicated by W. Christy, Esq.



Published by S. Curtis, London, May 1, 1824.

IBALIA CULTELLATOR.

Order Hymenoptera. Fam. Diplolepidæ *Lat.*, *Leach.*

Type of the Genus Ichneumon Cultellator *Fab.*

Ibalia *Lat.*, *Ill.* Ichneumon. Ophion, Banchus *Fab.* Cynips *Jur.*

Antennæ inserted in the centre between the eyes, approximating; filiform, composed of 15 joints in the male; third joint bent, clavate, emarginate on the external edge (f. 1.); a little clavate, 13-jointed in the female (1. a.), second joint very small.

Labrum corneous, small, transverse, arcuated before, emarginate in the centre. (*Lat.*)

Mandibles thick, nearly quadrate, tridentate on the internal side in one mandible and bidentate in the other, apical tooth more acute, inferior broad, truncate. (3.)

Maxillæ very broad in the middle, terminal process broad at apex, slightly bilobed, ciliated: *Palpi* short, 5-jointed, first and fourth small, second and last large, nearly obtrigonate rounded at apex, hairy. (4.)

Mentum pear-shaped. (5. a.) *Palpi* short, hairy, 3-jointed, terminal joint equal in length to the other two. (b.) *Lip* small, concave, nearly circular. (c.)

Head *transverse, as broad as thorax, vaulted behind.* Ocelli 3. Thorax *flat, slightly compressed.* Scutellum *bifid behind.* Abdomen *attached by a very short peduncle, very much compressed, knife-shaped, being very sharp on the under side, with a puncture or spiracle on each side of last joint, the male* 6*-jointed, of nearly equal size, very much vaulted.* (7.), *the female* 5*-jointed, the last being equal in size to the first four, with* 2 *elongated laminæ, between which a capillary oviduct passes, and is curved over the back.* (6.) Superior wings *with no decided stigma, costal nerve very distinct, one marginal cell, linear-lanceolate;* 3 *submarginal cells, first small, oblong, second extremely minute, third large, complete;* inferior wings *with one nerve branched near its extremity, four* anterior feet *short and slender;* coxæ of *posterior legs large,* thighs *short, robust,* tibiæ *very long, first joint of tarsus very long, second small, produced into a spine on the external side* (8. a.), *third and fourth small, fifth longer, slender* (8. posterior leg of a male): *all the tarsi* 5*-jointed, terminated by pulvilli and claws scarcely unidentate.*

The dissections of the mouth were made from a female, of which the labrum was lost; the ovipositor is probably represented too short, from the specimen being imperfect.

Cultellator *Fab. Ent. Syst. t.* 2. *p.* 167. *n.* 142.

Black, hairy, rugose, head and thorax striated transversely, the latter with the anterior margin elevated, and three longitudinal grooves down the back. Abdomen bright ochraceous, shining. Legs fuscous, hinder thighs tinged with chesnut colour. Wings obscure.

In the Author's Cabinet.

The genus *Ibalia* contains at present, I believe, no other species than *Cultellator*, and was never known to inhabit Britain until the male represented in the plate was captured flying in a garden at Bungay, Suffolk, by Mr. W. H. C. Edwards, justly celebrated for his masterly engravings and knowledge of the fine arts. It is also found in Germany and the South of France. The economy and habits of this genus are supposed to be similar to the rest of the family, forming galls upon various plants.

The eccentric appearance (in the male) of the third joint of the antennæ at once shows that it belongs to the *Diplolepidæ*, of which family it is the largest species; the second submarginal cell is so minute, that it is scarcely discernible through a lens; the hinder legs in both sexes are very powerful, and exceedingly disproportioned to the body and other legs, which are remarkably small. The singular spine-like process on the second joint of the hinder tarsi of both sexes, as well as the puncture or spiracle on the side of the abdomen, have hitherto, I believe, escaped the observation of authors.

It may here be observed, that the mandibles are often not counterparts of each other, the shape being altered by their close contact when at rest; other parts of the mouth are also sometimes irregularly formed. The student must not be misled by these exceptions, which are most frequent in the *Hymenoptera*, occasionally in the *Coleoptera*, and probably all the *Mandibulata*.

The plant figured is *Stellaria media* (Common Chickweed).



688.

CYNIPS NERVOSA.

ORDER Hymenoptera. FAM. Diplolepidæ.

Type of the Genus, Cynips Quercus radicis *Fab.*

CYNIPS *Linn., Fab., Curt.*

Antennæ inserted in a cavity in front of the face, longer than the body in the males (1 ♂), subsetaceous, pubescent, and 15-jointed, basal joint the stoutest, short and ovate, 2nd the smallest ovate, 3rd the longest, suddenly bent and slightly emarginate towards the apex, 4th shorter and linear, the remainder decreasing in size to the last joint, which is slightly longer than the penultimate; not longer than the body, slightly clavate and 14-jointed in the females (♀), 3rd joint the longest but simple, 4th and 5th linear, 6th stouter and shorter, the remainder subturbinate, apical joint a little longer, ovate-conic. In some species there are only 13 joints.

Labrum undiscovered.

Mandibles broad, subtrigonate, terminating in a strong tooth, with a trigonate tooth next it, and sometimes a third inside (3).

Maxillæ terminated by a double ovate hairy lobe. *Palpi* rather long, hairy and 5-jointed, basal joint minute, 2nd long slender and clavate, 3rd and 4th oblong, 5th the stoutest, elongate, semiovate, the apex being truncated obliquely (4).

Mentum elongated, narrow, a little dilated anteriorly, forming shoulders for the insertion of the *Palpi,* which are short stout and biarticulate, basal joint the longest, 2nd ovate-conic.

Obs. there is an indistinct suture giving an appearance of a central joint, which is fully developed I believe in some species.

Labium moderate, hollow rounded and pubescent (5).

Head *short transverse; face suborbicular:* eyes *small, lateral and ovate:* ocelli *forming a large depressed triangle on the crown.* Thorax *gibbose, ovate, collar very short:* scutel *semiovate.* Abdomen *smaller than the thorax, especially in the male, ovate compressed and truncated obliquely, attached by a short thick petiole, basal joint large, apical ones very short:* oviduct *slender and curved, attached above near the apex, and emerging through a sheath below and* 2 *large clavate ones above.* Wings, *superior very much longer than the body, with a large subtrigonate marginal cell, discoidal cells incomplete, but occasionally with a triangular areolet, costal nervure none* (9): inferior *rather small, with* 2 *basal nervures.* Legs *strong, hinder the longest:* coxæ, *hinder incrassated:* tibiæ *simple, with minute spurs at the apex:* tarsi *rather long, slender, and* 5*-jointed:* claws *and* pulvilli *small.* Obs. *the antennæ are drawn from* C. megaptera *Panz.*

NERVOSA *Curt. Guide, Gen.* 564. 4.

Female black shining, obscurely punctured and slightly pubescent; antennæ 14-jointed, as long as the body, 2 basal joints brownish: ocelli very large: postscutel rugose with 3 parallel ridges: abdomen very smooth and ochreous, the lower sheath brown: wings pale fuscous, iridescent, nervures brown, edges of marginal cell suffused; anterior legs pale ochreous, intermediate brown, hinder piceous, base of all the thighs darker, apical joint of tarsi fuscous.

In the Author's Cabinet.

This group of insects, called Gall-nut flies, deposits its eggs in the leaves, buds, stalks, and even in the roots of plants, thereby forming the various and curious galls which are commonly found upon the oak and other trees, rose bushes, &c. One of them, *C. Gallæ-tinctoriæ*, is the origin of the Oak-gall in Asia Minor, which is employed in making ink, dyeing, &c., and another, there is little doubt, is the author of the bitter apples alluded to in the Old Testament. Protected as the larvæ are in the heart of a hard ball, they are not secure from the attacks of other Hymenoptera, which by means of their ovipositors are enabled to pierce the galls, and lay their eggs in the tender larvæ, so that instead of the Cynips alone, a tenfold greater number of Callimome (fol. 552.) and Ichneumonidæ often issue with them from the galls.

The abdomen of a female that I dissected was filled with eggs; the oviduct was attached near the superior angle and curved vertically towards the base, and was exserted under or between the laminæ at a short distance from the ventral sheath. Roesel has given figures of the Galls, larvæ, pupæ and imago in pl. 35, 36, 52 and 55 of vol. iii. The following species from my collection seem to be undescribed.

4. nervosa *Curt. Brit. Ent. pl.* 688 ♀.

July, Dover. It is distinguished from *C. Rosæ* by the large ocelli, carinated scutel, dark hind legs, the absence of the brown splash on the costa of the upper wings, and of the areolet.

5. brevicornis *Curt. Guide.* *Fem.* black, shining; abdomen bright ferruginous; legs bright ochreous, tips of tarsi fuscous; mandibles and antennæ ferruginous, the latter brownish towards the apex, not much longer than the head and thorax, 13-jointed, terminal joint the longest: length 1⅓ line. Dover.

12. pallidicornis *Curt.* Shining piceous; antennæ mouth and legs ochreous, the former shorter than the body, subclavate, 13-jointed, 3rd joint the longest: ¾ long.

17. Anthracina *Curt.* *Fem.* black, head minutely punctured; abdomen piceous, beneath paler, legs lurid ochre, tips of tarsi brown, antennæ shorter than the body, subclavate, 15-jointed, brown, 2 basal joints ochreous, 3rd the longest, wings long, transverse nervures of wings suffused yellowish-brown: 1¼ long. May, Coomb Wood.

26. crassicornis *Curt.* Head and thorax black and punctured, abdomen shining piceous: antennæ as long as the body, 15-jointed, ochreous, apex brown, 3rd joint the stoutest and longest; legs piceous, anterior ochreous, base of thighs, outside of tibiæ and tips of tarsi piceous; wings with faint nervures: ¾ long.

27. fulviceps *Curt.* Shining black, head and legs bright ochre; antennæ longer than the body, fuscous, base ochreous, 2 basal joints ovate, 3rd slender, scarcely longer than the following, wings very ample: ¾ long. Bred from female Aphides by the late Mr. T. Carpenter.

32. pedestris *Curt.* Shining piceous; head large and black; legs and antennæ ochreous, the latter fuscous beyond the middle, as long as the body, 14-jointed, 2 basal joints stout ovate, 3rd a little longer: thighs brownish at the base, tips of tarsi fuscous; wings rudimentary: ¼ a line long. Southgate, Mr. Walker, and also No. 26.

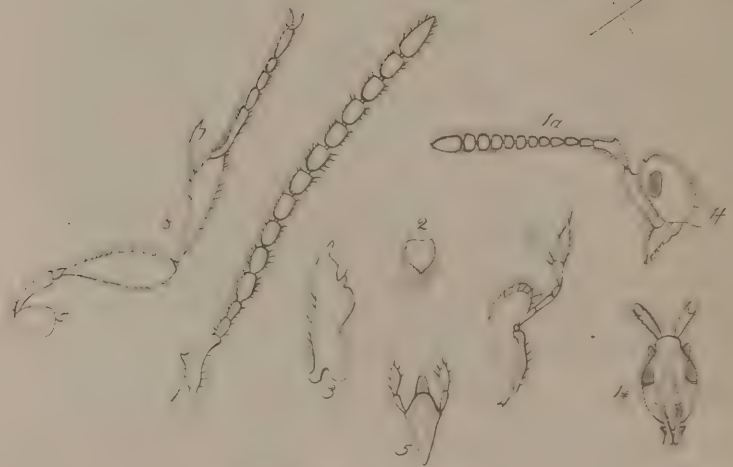
For Mr. Walker's characters of Sections consult the 3rd vol. of the Ent. Mag.

The Plant is *Conium maculatum*, Common Hemlock.

* G. & Sm. p. 176 Stannard p. 62.







Published by J. Curtis Jun. 1. 1831

341.

GALESUS FUSCIPENNIS.

Ord. Hymenoptera. Fam. Proctotrupidæ *Curt.* Oxyuri *Lat.*

Type of the Genus, Psilus cornutus *Panz.*

Galesus *Hal. MSS., Curtis.*—Psilus *Panz., Jur.*—Diapria *Lat.*

Antennæ inserted on the edge of a large cup formed by the projection of the face, very pubescent and pilose, as long as the body, geniculated, filiform in the male and 14-jointed, basal joint the longest curved and angulated on the inside, 2d and 3d joints the shortest and slenderest, the remainder robust and oblong, the terminal joint long and conical (1): shorter clavate and 12-jointed in the female, the 2d and 3d joints being rather longer than the following, suboval, 4th and 5th ovate, the following moniliform, increasing in size to the terminal joint, which is long and conical (1 a).

Labrum? subcordate, ciliated with long hairs (2).

Mandibles approximating, rostriform, porrected, long and slightly pilose, bent and pointed at the apex, the inside very much sinuated, with a tooth towards the apex (3).

Maxillæ externally corneous, terminated by 2 thin semioval plates, lying close together, one producing a series of bristles, the other ciliated. *Palpi* rather long and slender, attached apparently to a minute scape, 5-jointed, 1st and 2nd joints nearly of equal length, 3d short oblong, 4th and 5th dilated, the former at the apex, the latter is the longest and truncated obliquely (4). *Mentum* lozenge-shaped, anterior margin rounded, beyond which extends a fleshy *Labium*. *Palpi* biarticulate, basal joint slender and clavate, 2d rather longer, robust, pilose (5).

Trophi *deflexed* (1†) *forming a rostrum beneath the* Head *which is oval, the crown elevated in front with a short horn on each side the face sloping inward to the clypeus.* Eyes *lateral small and oval.* Ocelli 3, *placed on the fore part of the crown of the head, very large* (1*, *underside of the head of a female,* 1† *the same in profile*). Neck *distinct.* Thorax *broader than the head, elongate-ovate, the sutures very strongly marked:* squamulæ *very large and covering the base of the superior wings.* Scutellum *emarginate at the apex the angles acute.* Petiolus *robust and fluted.* Abdomen *elongate-ovate rather conical at the apex in the female, basal joint with a deep channel at the base and covering the whole body, excepting the apex.* Wings *iridescent, pubescent and ciliated, superior very large, narrow at the base, rounded at the apex, with a short subcostal nervure, a transverse curved callous nervure near the base and several nervures indicated only, and no cells: inferior wings small and narrow.* Legs *rather short and slender:* coxæ *long:* thighs *short and incrassated:* tibiæ, *anterior very slender at the base and robust at the apex, producing a long curved and acute spine, dilated below the apex:* tarsi 5-*jointed, basal joint long, curved at the base and beautifully pectinated in the anterior pair, terminal joint shorter than the basal one:* claws *acute:* pulvilli *membranous* (8, *a fore leg*).

Fuscipennis *Curtis's Guide, Gen.* 570. *No.* 1.

In the Cabinets of Mr. Walker and the Author.

Walker de faville G. 754, h cupo, cf

Galesus is characterized by the peculiar form of the antennæ, and by the remarkable head and distinct petiole; and it may be observed that the Psili of Jurine, which are the Diapriæ of Latreille, vary from our genus in having the third joint of the antennæ long.

In dissecting this insect, the curious scales which cover the base of the superior wings attracted my notice; they are thin and moveable, and may be used in closing the large wings, which for want of strong nervures, probably require their assistance. The dilated spine at the apex of the anterior tibiæ, and the beautiful pectinated basal joint at the tarsi, although common in the Hymenoptera, are seldom more developed. I have now little doubt that they are for the purpose of cleaning the antennæ; few insects are without a spine to the anterior tibiæ, and the basal joint of their tarsi is generally hollowed out inside, if it be not always pectinated in this order.

Three species only have been discovered; Mr. Haliday thinks the third may be a small variety of the second.

1. G. fuscipennis *Curtis Brit. Ent. pl.* 341. *male.*

Smooth, black and shining, partially covered with yellowish pubescence: antennæ as long as the wings in the male, with the fourth and following joints elongated: eyes castaneous: ocelli pale: scutellum rugose: petiole with five very elevated longitudinal lines: wings pale, fuscous, yellowish towards the base, superior, with two white, and two or three brownish longitudinal lines on each; a callous spot below the apex of the subcostal nervure, and the curved one near the base, yellowish brown: base of thighs, tibiæ, and tarsi castaneous, the hinder tibiæ with a dark spot below the middle and the tips of the tarsi black.

The male figured I took in Norfolk many years since, and Mr. F. Walker finds it amongst grass in woods near Southgate, in June and July.

2. G. cornutus *Panz.* 83. 11. *female.*

Antennæ shorter than the wings in the male, having the fourth and following joints subovate, excepting the apical one (f. 1.): wings very pale, yellowish-fuscous: petiole with five faint elevated lines: base and tips of the thighs castaneous, all the tibiæ blackish in the middle, the hinder pair and the tarsi castaneous only at the base.

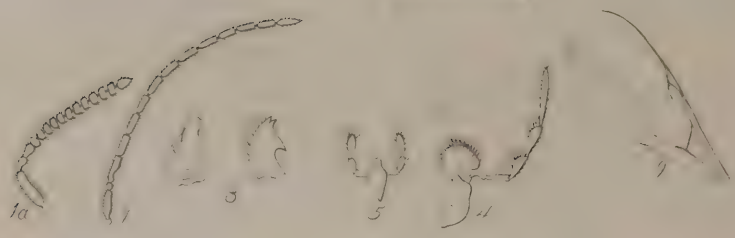
Males taken in February and April, in shady places; and females beginning of July, on the sea-shore at Holywood, by Mr. Haliday.

3. G. claviger *Hal. MSS. Curtis's Guide, No.* 3.

Length three quarters of a line and one and a quarter. Male undiscovered: females very similar to the last, with which they were taken by Mr. Haliday.

The plant is *Pinguicula lusitanica* (Pale Butterwort), from Boscomb Chine, Hants, communicated by the Honourable C. A. Harris.




1a
1
3
5
11

CINETUS DORSIGER.

Order Hymenoptera. Fam. Proctotrupidæ.

Type of the Genus, Cinetus gracilipes *Curt.*

Cinetus *Jur., Curt. Guide, Gen.* 573.

Antennæ approximating, as long as the body, filiform, pubescent and 14-jointed in the males, basal joint a little thickened in the middle, not longer than the 3rd; 2nd globose, the remainder slightly decreasing in length; the 3rd joint is emarginate outside at the base, the apical joint subconical (1): 15-jointed in the females.

Labrum undiscovered.

Mandibles short, one trigonate, rounded at the apex, with a slight protuberance on the inside, the other bifid at the apex, emarginate on the inside at the base, forming a strong tooth (3).

Maxillæ with the base broad, terminated by a large rounded lobe, produced on the outside, ciliated and bristly at the margin. *Palpi* very long, pubescent, pilose and 6-jointed, basal joint minute, 2nd longer, 3 following of equal length and a little longer, the 3rd slender, 4th and 5th dilated, 6th nearly twice as long as the 5th and slender (4).

Mentum small obconic. *Lip* short and fleshy. *Palpi* rather long, pubescent and triarticulate, 1st and 2nd joints of equal length, subclavate, 3rd longer, clavate ovate and pilose (5).

Head *subglobose, slightly produced in front at the insertion of the antennæ.* Eyes *lateral and suboval.* Ocelli *rather large,* 3 *in triangle on the crown of the head.* Thorax *gibbous, obovate;* scutellum *rather large, the angles of the* postscutellum *often acuminated.* Wings *generally ample and pubescent, with a subcostal nervure, a furcate longitudinal nervure below, with a transverse one towards the base, the* Stigma *open and forming a trigonate cell producing a nervure at the lower angle* (9). Abdomen *with the basal joint forming a robust peduncle, 2nd joint covering the whole body, excepting the apex which is composed of* 6 *or* 7 *rings.* Coxæ *long.* Thighs *short and incrassated.* Tibiæ *spurred, very slender at the base and robust at the apex, especially the anterior, which are furnished with a curved and bifid spine at the apex.* Tarsi *long and 5-jointed, basal joint long curved and pectinated on the inside at the base in the anterior pair, terminal joint not longer than the 2nd.* Claws *acute.* Pulvilli *long.*

Dorsiger *Haliday's MSS.*

Ochreous shining, slightly pubescent: antennæ brown, base ochreous: eyes, margins of the ocelli and disc of the thorax and scutellum black: abdomen pellucid, dirty white, excepting towards the apex: wings iridescent, the nervures brown.

In the Cabinet of Mr. Haliday.

Belyta and Cinetus are so much connected, and the females are so similar, that until we have the sexes of the different species it will be difficult to determine whether the genera ought to be separated or united. Jurine distinguishes Cinetus by the triangular costal cell, and the antennæ of the males are 14-jointed, those of the females 15-jointed. Since the plate was engraved I have availed myself of Mr. Haliday's papers, and I have scarcely any doubt that the fig. *1 a*, belongs to Jurine's genus Belyta; I have therefore not incorporated the characters of this sex in the generic description, but I strongly suspect some of the females have antennæ very similar to the figure above alluded to.

The following species have been already detected in Britain, although only one has ever been recorded, except in the Guide, and there is no figure of the genus, I believe, in any work, British or foreign.

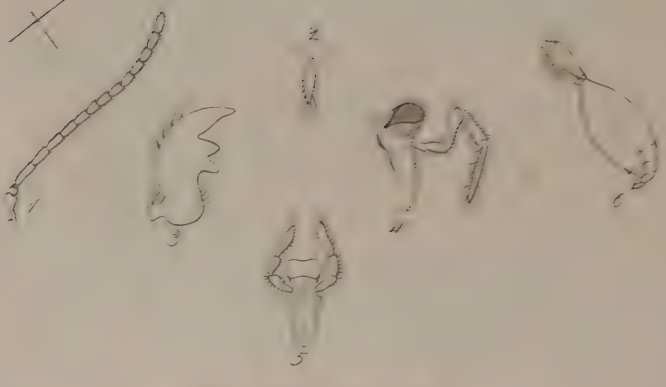
1. C. Rubecula *Hal.—Curt. Guide, Gen.* 573. 1.
2. C. bicornis *Ste.*
2b. C. armatus *Hal.* Male 1⅓ line long; black, shining and slightly pilose, tip of the 1st and base of the 2nd joint of antennæ castaneous, angles of postscutellum very acuminate. Wings fuscous, nervures piceous. Legs ferruginous, base of coxæ, middle of thighs and of 4 anterior tibiæ and tarsi at the apex piceous.
3. C. gracilis *Curt.* 1⅓ line long: similar to No. 2b but more slender; the 3rd joint of antennæ is strongly sinuated, the base of abdomen castaneous, the legs are entirely ochreous and the open stigma is elongated. June, Bexley, Kent.
4. C. gracilipes *Curt.* 2¼ lines long: black shining; peduncle slender, as long as the abdomen: wings slightly yellow, nervures ochreous, antennæ and legs ferruginous ochre, the former fuscous at the apex, posterior thighs castaneous.
5. C. fuliginosus *Curt.* 1⅓ line long: similar to No. 4; the abdomen much narrower, and oval. Wings dusky, nervures piceous.
6. C. Cantianus *Curt.* 1 line long: black, shining: wings transparent, the open stigma elongated: legs ferruginous brown, antennæ castaneous at the base, submoniliform in the female.
7. C. Vigil *Hal.*
8. C. maurus *Hal.*
9. C. Numida *Hal.*
10. C. nigripennis *Hal.* April, Holywood.
12. C. ruficornis *Curt.* Female 1½ line long: robust, black and shining, angles of postscutellum produced; peduncle short and thick: wings yellow, the open stigma elongated, nervures piceous: antennæ and legs rufous ochre, the former moniliform.
13. C. maculatus *Hal.*
14. C. dorsiger *Hal.—Brit. Ent. pl.* 380. The male figured was taken on an oak by A. H. Haliday, Esq. in the county of Galway, Ireland.
17. C. Cursor *Curt.* Female. Similar to No. 12. in size and colour, but having very short and imperfect wings; the base and tip of the abdomen are ferruginous.
18. C. Mirmillo *Hal.*
19. C. dryinoides *Hal.*
20. C. astutus *Hal.*

No. 11. (bicolor *Jur.*) of the Guide, and probably 14, 15, and 16, ought to be arranged under Belyta.

The Plant is *Cnicus pratensis* (Meadow Plume-thistle.)







HELORUS ANOMALIPES.

ORDER Hymenoptera. FAM. Proctotrupidæ.

Type of the Genus, Sphex anomalipes *Panz.*

HELORUS *Lat., Jur., Curt.*—Sphex *Panz.*

Antennæ inserted between the eyes, not approximating, shorter than the body, filiform and clothed with very short pubescence, composed of 16 joints, basal joint the stoutest, ovate-truncate, 2nd globose, 3rd ring-shaped, 4th longer than the following which decrease slightly in length to the apical joint which is ovate (1).

Labrum? long narrow, spear-shaped and ciliated with long bristles (2).

Mandibles porrected, strong, curved and slightly hairy, the apex forming a large tooth with 2 large ones below on the inside (3); the superior the smallest in one mandible.

Maxillæ terminated by a rounded hairy coriaceous lobe, with a large but thinner one on the inside. *Palpi* long hairy and 5-jointed, 1st and 2nd joints of equal length, the former very slender at the base, the others very long, the 3rd and 4th being stout and subclavate, 5th the longest and slenderest (4).

Mentum oblong, hairy, emarginate on each side near the apex, where the *Palpi* are attached; they are rather long hairy and triarticulate; basal joint slightly clavate, 2nd shorter, subovate, 3rd a little longer than the 1st subclavate (5).

Head *rather large and transverse.* Eyes *lateral and oval.* Ocelli 3. Thorax *obovate, the postscutellum rugose.* Wings *iridescent and pubescent superior rather broad, the stigma rather large with a small angulated marginal cell, and a minute looped one on the disc.* Abdomen *attached by a long peduncle, stoutest at the base, the body ovate-conic, with the apex inflected, the greater portion covered by the basal joint* (6). Legs *simple.* Tibiæ; *anterior with a curved spine at the apex, the others with small spurs.* Tarsi *as long as the tibiæ, 5-jointed, basal joint long, 4th small.* Claws *distinct.*

ANOMALIPES *Panz.* 52. 23. and 100. 18 *var.*—*Curt. Guide, Gen.* 574. 2.

Black shining and punctured, clothed with very minute yellowish hairs. Trophi ferruginous, the head with 2 large foveæ in front where the antennæ are inserted, postscutellum rugose: peduncle urn-shaped, channelled and carinated at the base. Legs ochreous, the base of the anterior and the whole of the other thighs, excepting the tips, black, the apex of the tarsi fuscous. Wings slightly stained with yellowish brown, the stigma and nervures piceous.

In the Author's and other Cabinets.

Helorus is a genus that does not appear to be immediately connected with any that have been at present discovered, for the neuration of the wings reminds us of Cynips; the peduncu-lated body, of Agriotypus (pl. 389.); and the structure of the mouth shows an affinity to Bethylus, to which genus I believe Mr. Haliday thinks it most allied; indeed there can be no doubt of its belonging to the family of Proctotrupidæ; but it may be at once distinguished from all its congeners by the curved nervure, forming, as Jurine observes, a horse-shoe in the centre of the superior wings.

The portion of the mouth figured as the labrum, may be only an appendage to it, but it was all I could discover, and I had only the opportunity of dissecting one specimen; I believe a similar lobe is exserted from the mouths of the Bethyli.

Mr. F. Walker showed me some specimens which I suspect are the males of our insect; they are more slender, the antennæ are brown or ochreous, the wings transparent, the peduncle much more slender than in my specimen; the body is more acute, the legs are very slender and ochreous, with black coxæ, and the posterior thighs are brown, except at the base and apex.

It is not improbable that the *H. ater* represented in Jurine's 14th plate may be nothing more than a variety of *H. anomalipes* with the legs entirely black; for in one of Panzer's figures all the thighs are black, and I have a specimen in which only the tips of the anterior thighs and their tibiæ are ochreous.

Helorus is by no means a common insect; I took specimens many years since in Norfolk, and Mr. Kirby has observed it in Suffolk; Mr. F. Walker takes it at Southgate in a marshy meadow in August; Mr. Dale has found it on Parley Heath, Dorset; and Mr. Haliday sent me a specimen from Belfast; he detected it in a marshy field at Holywood.

The Plant represented is *Solanum nigrum* (Common Nightshade).



744.

PROCTOTRUPES AREOLATOR.

ORDER Hymenoptera. FAM. Proctotrupidæ.

Type of the Genus, Ichneumon gravidator *Linn.*

PROCTOTRUPES *Lat., Hal., Curt.*—Codrus *Jur. Esen.*—Bassus *Fab.* *Antennæ* inserted in the middle of the face, remote, not so long as the body, filiform, or slightly thickened towards the apex, pubescent, 13-jointed, basal joint elongate-ovate, stout, 2nd small, cup-shaped, 3rd the longest, the remainder gradually decreasing in length, the apical joint a little longer than the penultimate, the apex somewhat conical (1).

Labrum transverse, semiovate, hairy (2).

Mandibles rather slender, slightly curved, not very acute (3).

Maxillæ terminating in a short irregular hairy divided lobe, dilated externally. *Palpi* 5-jointed? longish and hairy, basal joint short, indistinctly articulated, 2nd long stout and clavate, 3rd similar but a little longer, 4th the longest clavate, slenderer than the preceding, 5th rather shorter and attenuated (4).

Mentum oblong, rounded at the base. *Labium* very short and rounded. *Palpi* moderate, hairy, clavate, triarticulate, basal joint longish, 2nd short, 3rd stout, elongate-obovate (5).

Head *short and broad, face suborbicular:* eyes *lateral prominent and oval:* ocelli 3 *in triangle.* Thorax *narrower than the head and very long:* collar *compressed:* scutel *semiglobose:* metathorax *long narrow and rounded behind.* Wings *pubescent, iridescent:* superior *with a large stigma and a very small marginal areolet, or a somewhat triangular cell; costal and subcostal nervures parallel, a discoidal cell and* 2 *longitudinal nervures are also faintly traced* (9); inferior wings *nerveless.* Abdomen *as long as the thorax and a little thicker, attached by a short thick petiole, 6-jointed, ovate-conic, the apex furnished with* 2 *short appendages in the male, attenuated in the female;* ovipositor *considerably shorter than the body, incurved* (7) *composed of* 2 *strong sheaths, ciliated and slightly hooked at the apex* (*a*), *inclosing a slender lanceolate sheath* (*b*), *which contains* 2 *valves* (*c*), *that are curved and pointed, and these are confined by the apex of the sheath which forms a cap, into which they fit, besides these there is a long broader membranous filament with a rib in the centre* (*m*). Legs *rather slender, hinder long:* coxæ, *hinder with a spur at the internal apex:* thighs *slightly clavate:* tibiæ *simple, spurred at the apex:* tarsi *long slender and* 5-*jointed, basal joint the longest and stoutest, 4th not much shorter than the 5th:* claws *rather long and slender:* pulvilli *distinct.*

AREOLATOR *Hal.—Curt. Guide, Gen.* 575, *no.* 6.—ephippium *no.* 17. Shining piceous-black, disc of thorax and scutel rufous: metathorax clothed with pale hairs, rugose, with a ridge down the middle: petiole short, dilated towards the apex, striated as well as the base of the following segment; ovipositor incurved, half as long as the abdomen, ferruginous; antennæ much shorter than the body, brown, 4 or 5 of the basal joints ochreous: wings yellowish, a little fuscous towards the apex, costal nervures and stigma piceous, marginal areolet elongate-trigonate, the other nervures faint; legs ferruginous-ochre, tips of tarsi fuscous.

It was the opinion of Latreille and Esenbeck that Proctotrupes is allied to Helorus (pl. 403), and Mr. Haliday considers that it connects Diapria (Psilus) and Ceraphron (pl. 249). I must confess I expected to find it related to Cynips, and being unable to enter upon its affinities, I shall pass on to an examination of the ovipositor, which offers some peculiar characters. In the Ichneumonidæ this organ is either porrected or elevated, but in Proctotrupes it is deflexed. Like that family, however, it has 2 sheaths inclosing a compound oviduct composed of 3 pieces, as shown in Pimpla (pl. 214. f. 6), but in Proctotrupes these are acuminated, and the lateral ones have their points securely fixed in the central one, the apex of which forms a cap for them: the most remarkable part of the structure, however, is an additional valve a little longer than any of the others, rather broad and membranous, with a thickened rib down the middle, the apex rounded (fig. m.): never having seen more than 5 pieces in any ovipositor including the sheaths, I cannot at present determine its functions.

I rejoice to see that Mr. Haliday has commenced publishing Monographs on the Oxyuri, as they will enable those engaged in the study of these minute Hymenoptera to derive every advantage from his elaborate investigations. The following sections and species form his 1st fasciculus.

A. *Metathorax rugose. Both sexes winged.*

B. *Claws of anterior feet with appendages.*

1. niger *Panz.* 85. 9? 2. ater *Esen.* 2. 359. 8.
3. ligatus *Esen.* 359. 9.—basalis, minor, monilitor of *Guide, vars.*
4. brevicomis *Guide*, 575. 14. 5. longicornis *Esen.* 358. 7.

B.B. *Claws entire.* C. *Petiole conspicuous.*

D. *Sides of prothorax roughish.*

6. gravidator *Linn.*—campanulator *Fab.*—*Ahr.* 5. 16.—brevipennis *Lat.? Gen. Crust.* 4. *pl.* 13. *f.* 1.
7. gladiator *Hal. p.* 10. *n.* 7. 8. bicolor *Hal.* 10. 8.

D.D. *Sides of prothorax very smooth.*

E. *Scutel of mesothorax smooth.*

9. elongatus *Hal.* 11. 9. 10. pallipes *Jur. pl.* 13. *gen.* 46 ♀.
11. viator *Hal.* 12. 11. 12. curtipennis, *Guide*, 575. 8.
13. calcar *Hal.* 12. 13. 14. fuscipes *Guide*, 575. 10.

E.E. *Scutel of mesothorax bisulcated.*

15. areolator *Hal.—Curt. B. E. pl.* 744. ♀.—ephippium *Guide n.* 17.

This is the most variable of all the species, the thorax being sometimes piceous. Mr. Walker gave it me many years since.

C.C. *Petiole concealed.*

16. aculeator *Hal.* 14. 16.
17. Laricis *Hal.* 14. 17. On larch-trees infested with Aphides.
18. parvulus *Esen.* 360. 10. Females gregarious in boleti, infesting the larvæ of Mycetophila in the autumn.

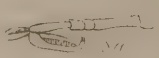
A.A. *Metathorax smooth.*

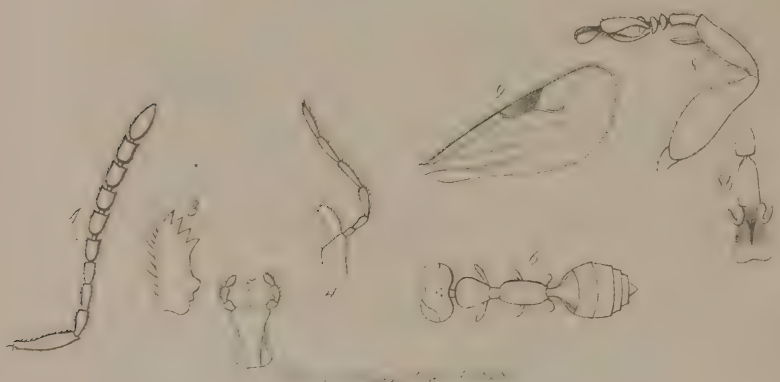
19. apterogynus *Hal.* 15. 19.

The plant is *Picris hieracioides*, Hawkweed Ox-tongue.




Carduus nemoli





DRYINUS CURSOR.

ORDER Hymenoptera. FAM. Proctotrupidæ *Nob.* Oxyuri *Lat.*

Type of the Genus Dryinus formicarius *Lat.*

DRYINUS *Lat., Leach.*—Gonatopus *Klug.*

Antennæ remote, slightly geniculated and clavate, pilose, inserted between the eyes at the base of the nasus, 10-jointed, basal joint long, subclavate, 4 following increasing in diameter, the 3d joint being a little the longest, 5th the shortest, the 6th and remainder turbinate, robust, of equal length, excepting the terminal joint which is conical and longer (1).

Labrum undetected.

Mandibles remote, quadridentate, externally pilose (3).

Maxillæ small, terminated by a pilose lobe, scarcely cleft. *Palpi* very long and slender, 6-jointed, basal joint small, 2d twice as large, the remainder nearly of equal length, being rather long slender and pilose (4).

Mentum long, dilated anteriorly. *Labium* very small, concealed. *Palpi* remote, short, triarticulate, basal joint short, 2d the largest, 3d not larger than the 1st, rhomboidal (5).

Head *subtrigonate.* Eyes *large.* Ocelli 3, *in triangle.* Thorax *not broader than the head, the prothorax sometimes elongated.* Abdomen *not larger than the thorax, peduncled, conical and acuminated.* Wings *iridescent, pubescent, superior with a costal and marginal cell, the nervure of the latter from the angle sometimes indistinct, 2 nervures running from the base to the apex intersected transversely before the middle; stigma large; inferior wings nerveless, lobed at the base* (9). Legs *long.* Thighs *incrassated, especially the anterior in some and attenuated to the apex.* Tibiæ *spurred, anterior short.* Tarsi *long 5-jointed, anterior with the basal and terminal joints long of equal length, the latter being robust, producing at the base a horny lobe, the analogue of a 2d claw, extending to the 2d joint, the 3 intermediate small* (8): *basal joint the longest in the other feet.* Claws; *anterior feet with one only, which is very long, reflexed and slightly produced towards the base.* Pulvilli *porrected and very long* (8); *the other feet with 2 small claws very much dilated at the base and a large Pulvillus* (8 *b, hind foot*).

Obs. *The above description is from* D. Cursor, *the following from* D. bicolor. *Apterous like a neuter ant.* Head *very large.* Ocelli *very minute.* Thorax *very long slender, binodate.* Abdomen 6-*jointed* (6). Tibiæ, *anterior long, the* Tarsi 4-*jointed, basal and terminal joints long, intermediate very short.* Claws 2, *very long and unequal, spined internally.* Pulvilli *large* (8 *a fore foot*).

CURSOR *Hal. MSS.*

Black, shining, slightly pubescent. Antennæ slightly ferruginous at the base. Head and metathorax dull, the former minutely, the latter coarsely punctured. Legs ochraceous. Thighs, tibiæ and basal joint of tarsi of 4 posterior legs piceous. Wings hyaline, slightly stained yellow; nervures and stigma ochreous.

In the Cabinets of Mr. Haliday and the Author.

1 mihi at Acanthe G. 7d, 1 exp.

Nature, ever fertile in her resources, having dispensed with one claw in the anterior feet of the males (at least in the species of which there were duplicates to examine),—to supply the deficiency, has produced the base of the terminal joint exactly as if a second claw was bent back as in the apterous sex, and soldered to that joint; it would appear therefore that the means of capturing their prey are curtailed; but the power to retain it is probably increased. Like the genus Proctotrupes, the abdomens are acuminated, which give them all the appearance of females.

The following species (with the exception of the first and last) were taken by Mr. Haliday in Downshire near the Bay of Belfast, "on grass in open groves and the adjacent meadows, from the 4th of June to the middle of August. When in the net they ran with uncommon activity, the chelate ungues remaining reflected on the tarsus."

A. Prothorax elongated.

1. D. formicarius *Lat. H. N.* 13. 228.—*Gen. Crust. t.* 12. *f.* 6. —The female has been taken I believe at Ripley, Surrey, in Aug.

B. Prothorax short. 1. Legs of nearly equal size.

2. D. Cursor *Brit. Ent. pl.* 206.

3. D. rapax *Hal. MSS.*—The size of *D. Cursor*. Black, shining, antennæ and legs ferruginous-ochre, the former long and black in the middle, the apex of the posterior thighs as well as of the intermediate and posterior tarsi black; stigma and nervures ochreous.

4. D. lucidus *Hal. MSS.*—Smaller than the last; black shining; antennæ not longer than the thorax, fuscous except at the base, which is ochreous, as well as the legs, the posterior thighs fuscous at their apex; nerves of the wings very obscure.

2. Anterior legs incrassated.

5. D. crassimanus *Hal. MSS.*—Like *D. rapax*, but more robust, the antennæ shorter.

6. D. fulviventris *Hal. MSS.*—The size of *D. lucidus*; black, abdomen fuscous-ochre, black at the base, and a dark spot towards the apex; antennæ and legs yellowish piceous, apex of the former ochreous, the posterior thighs dark at their tips, 4 posterior tarsi and stigma dirty yellowish white.

7. D. bicolor *Hal. MSS.*—Apterous, black, prothorax pale and dirty ochre, anterior margin brown; antennæ at their base and legs pale ochreous fuscous, anterior thighs at their base, middle thighs beneath, a stripe on the anterior tibiæ and the apex of the 4 posterior tarsi piceous. Taken in moss on a bank in Ireland, April 1826.

I cannot conclude without acknowledging my obligations to Mr. Haliday for the handsome manner in which he has allowed me to be the medium of communicating his valuable researches, as well as for his liberality in supplying me with specimens to illustrate this remarkable genus.

Carduus acaulis (Dwarf Thistle) is figured in the plate.



720.

BETHYLUS FULVICORNIS.

Order Hymenoptera. Fam. Proctotrupidæ.

Type of the Genus, Bethylus punctatus *Lat.*

Bethylus *Lat., Fab., Nees, Curt.*—Ceraphron *Panz.*—Omalus *Jur.* *Antennæ* straight, slightly tapering, not remote, inserted at the base of the clypeus, shorter than the thorax, pubescent and a little pilose, 12-jointed, basal joint very stout, elongate-ovate, 2nd oblong, slenderer than the following which are compressed, a little thickened to the middle and tapering again to the apex (1).

Labrum a semicircular membrane, inserted under the clypeus, with a long horny lobe in the middle and a seta at the apex (2). *Mandibles* exserted, meeting, rather large and curved, the apex semicylindric and truncated, with 3 or 4 small teeth (3).

Maxillæ short and broad, terminated by an oblique oval ciliated lobe. *Palpi* not long, filiform and 5-jointed, basal joint somewhat cup-shaped, 2nd the stoutest, oblong, 3rd and 4th the same length, a little clavate, 5th a trifle longer, elliptic-conic (4).

Mentum corset-shaped, the basal angles produced, the centre convex, the anterior angles excised to receive the *Palpi,* which are short and biarticulate, basal joint cup-shaped, 2nd large clavate and pilose at the apex. *Lip* almost as large as the mentum, hollow and fleshy, the sides conniving (5).

Head *ovate or orbicular-quadrate, depressed but convex:* eyes *lateral, ovate:* ocelli 3, *placed in triangle at the base of the head.* Thorax *rather long and narrow:* prothorax *short, narrowed before:* scutel *conical trigonate:* metathorax *ovate, rugose at the base.* Abdomen *not longer than the thorax but broader, ovate-conic, the base with a short broad petiole, 2nd segment the largest, the apex furnished with a fleshy oviduct.* Wings, superior *with a costal nervure divided at the middle and forming a short narrow cell, closed by a small stigma, which emits a curved nervure not touching the costa, 2 long basal cells, lower one the shortest, with a pale line running to the extremity and an oblique indented one at its base:* inferior *with only 2 short basal nervures.* Legs, *hinder a little the longest:* thighs *stoutish, compressed:* tibiæ *narrowed at the base, with 1 spine at the apex:* tarsi *as long as the tibiæ, 5-jointed, basal joint long, 3 following very short in the anterior, 5th short and stout;* claws *short, stout and hooked at the base:* pulvilli *large.*

Fulvicornis *Curt. Guide, Gen.* 579.

In the Author's Cabinet.

I must confess that after great pains I am unable to satisfy myself as to the affinities of Bethylus, but I believe it to be most nearly allied to Ceraphron, fol. 249. Latreille places it amongst his Proctotrupii in the Gen. Crust., and says the antennæ are 13-jointed in both sexes, that the maxillary palpi are 6-jointed, and the labial 3- or 4-jointed; in his Fam. Nat.

he includes it in his tribe Oxyuri, under the same section as Dryinus. Nees ab Essenbeck says the antennæ are 14-jointed in the males, that the maxillary palpi are 6- and the labial 4-jointed. Jurine considers the antennæ to be 13-jointed in one sex and 12-jointed in the other. Now it is very remarkable that none of my specimens agree with any of the above characters, the antennæ being all 12-jointed, and the palpi 5- and 2-jointed; how these incongruities are to be reconciled I know not. There are as great differences of opinion respecting the species; for whilst some describe several, others view them as mere varieties: from the different situations in which I have found them, and from the variety of colour in their antennæ and legs, I shall distinguish them as species. Mr. Haliday has ascertained that the Bethyli secrete the larvæ of Lepidoptera in broken reeds which occur on sand-hills, for the purpose, it is presumed, of supporting their larvæ. The perfect insects are much attached to Syngenesious flowers, sallows, roses, grasses, &c. I must not omit to observe, that *Epyris* cannot be included with the *Bethyli*.

1. cenopterus *Panz.* 81. 14. "Base of antennæ and legs fuscous-testaceous: wings opake, somewhat nerveless: 1 line."
2. punctatus *Lat. Hist. Nat.* 13. 229. "Second and a few following joints of antennæ, and apex of tibiæ and tarsi fulvous: superior wings obscure, with a fine white nervure trifid at its extremity."

April, off rushes on the beach at Covehithe, Suffolk; June, off a hedge near Windsor, and in Yorkshire.

3. fuscicornis *Jur. tab.* 13, *Gen.* 43. "Black, flagellum of antennæ, tibiæ, and tarsi testaceous: $1\frac{3}{4}$ to 2 lines."

Off bushes Coomb Wood and Shooter's Hill in June.

4. fulvicornis *Curt. B. E. pl.* 720. Black, shining: very minutely shagreened, with a few scattered punctures, excepting the abdomen, which is very glossy, with a slight chalybeous tinge: head with an elevated longitudinal ridge between the antennæ, which are bright ochreous, as well as the mandibles: superior wings yellowish, with a large yellowish-brown space beyond the middle, through which runs a white line, nervures and stigma brown, 2 basal cells perfect: inferior wings iridescent: legs ochreous, anterior thighs with a brown patch above, the others piceous as well as their tibiæ, excepting the base and apex; tips of tarsi and claws brown.

August, on sand-hills, Sandwich, on the coarse grass, and in pits not uncommon.

5. formicarius *Panz.* 97. 16. "Black, middle of antennæ, tibiæ, and tarsi pale, stigma obsolete: $1\frac{1}{2}$ line."

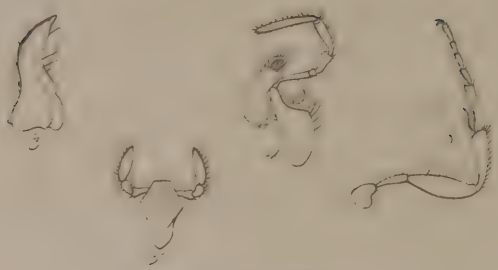
August, Scotland.

6. Syngenesiæ *Hal.* Wings short.

The plant is *Anthriscus sylvestris*, Wild Chervil.




1a



SPARASION FRONTALE.

ORDER Hymenoptera. FAM. Proctotrupidæ *Nob.*—Oxyuri *Lat.*

Type of the Genus, Sparasion frontale *Lat.*

SPARASION *Lat., Lea., Curt.*—Ceraphron *Jur.*

Antennæ inserted at the base of the clypeus, longer than the head, geniculated, pubescent, 12-jointed, basal joint the longest, incrassated, slender at the base, the clavola tapering to both ends, 2nd joint not so short as the 4th, 3rd longer, the remainder turbinate, apical joint small and conical (1).

Labrum undiscovered.

Mandibles long, narrow, bidentate and slightly pilose (3).

Maxillæ nearly meeting at the base behind the mentum, lower portion horny, semiovate, emarginate towards the top, and producing a membrane ciliated with bristles, some dilated at the base: lobe membranous, with a small horny and pilose appendage near the apex. *Palpi* long, 5-jointed, basal joint long, slender at the base, 2nd subovate, 3rd the most robust, not so long as the first, dilated and pilose on the inside, 4th and 5th hairy, as long as the basal joint, 5th considerably longer (4).

Mentum small, pilose, subturbinate, the anterior angles truncated obliquely, from which rise the *Palpi*, they are not very short but pilose and triarticulate, 1st joint a little longer than the 2nd, 3rd twice as long, subconic. *Labium* concealed behind the mentum (5).

Head *broad obtuse and produced transversely in front, appearing pointed in profile* (1†). Eyes *lateral, not large.* Ocelli 3, *large, remote and placed in triangle.* Trunk *a little broader than the head, obovate;* prothorax *short.* Scutellum *rounded;* postscutellum *bilobed.* Abdomen *attached by a portion of its base, but appearing sessile, elliptical, depressed, 7-jointed, the sides forming a sharp edge projecting over the underside.* Oviduct *concealed.* Wings; *superior rather short and broad; no costal nervure, but one running parallel to it halfway, where it forms a stigma and produces a short branch, 2 other longitudinal nervures are indistinct.* Legs; *posterior the longest.* Thighs *not much incrassated.* Tibiæ *rather stout and short in the anterior pair, producing strong bristly spines externally, with a curved spine at the apex on the inside.* Tarsi *longer than the tibiæ, 5-jointed, basal joint the longest and most robust, especially in the posterior pair, and beautifully pectinated on the inside, penultimate joint the shortest.* Claws *and* Pulvilli *small* (8).

FRONTALE *Lat. Hist. Nat. t.* 13. *p.* 230.—*Curtis's Guide, Gen.* 580.—Cornutus *Jur. Hym. pl.* 13. *g.* 44.

Black shining, sparingly clothed with ochreous pubescence and hairs. Head and thorax coarsely punctured, having a reticulated appearance. Abdomen marked with fine elevated longitudinal lines on the back. Wings iridescent, tinted with brown, darkest at the costa; stigma and nervure piceous. Thighs and tibiæ ferruginous at their tips, tarsi of the same colour.

In the Author's Cabinet.

* [illegible] J. de Scolopendres, [illegible] dans le corps [illegible]

Sparasion was unknown as a British insect until I had the good fortune to capture a specimen at Black Gang Chine in the Isle of Wight, the 16th of August 1828, but I have never been able to meet with it there since.

The 12-jointed antennæ, and the minute 2nd joint of the maxillary palpi, are sufficient to distinguish Sparasion from Ceraphron, to which it is closely allied on the one hand; but whether it be so nearly related to Bethylus on the other, I am not able at present to determine. The membranous appendage also to the maxillæ, ciliated along its concave margin, I have never observed in any other insect that I have dissected.

I shall here take the opportunity of observing, that with very few exceptions, I shall limit myself to the illustration of those genera of the minute Hymenoptera which have been established by Latreille, so that a very considerable number of those recorded in my "Guide" will not be published in this work; by which means the Student will be put in possession of the leading characters, to enable him to extend his investigations further if he chooses, and this work will not be carried to an inconvenient length. I beg however to acknowledge my obligations to my esteemed friends Mr. Haliday and Mr. F. Walker for their generous and valuable assistance; and I hope they will be induced to give naturalists the benefit of their researches in the two families they have so successfully studied, by publishing the characters of the genera and species of these minute but beautiful tribes, of which Mr. Haliday has made most admirable dissections, and Mr. Walker has formed a collection embracing at least 700 British species.

The minute Hymenoptera are best collected by beating into, and sweeping with, a net made of fine gauze, and Mr. Haliday recommends me to collect them into quills, and afterwards to empty their contents into hot water, by which means their wings are naturally expanded; then by introducing a card under them to take them out of the water, arranging the legs and wings when necessary with a camel's hair pencil, and leaving them upon the card till they are dry, they may afterwards be taken off with a penknife, and gummed upon the points of small pieces of drawing- or card-paper of a long triangular form.

The plant is *Galium verum* (Yellow Lady's Bed-straw).




1a
1
2
3
4

CERAPHRON HALIDAYI.

ORDER Hymenoptera. FAM. Proctotrupidæ *Nob.* Oxyuri *Lat.*

Type of the Genus Ceraphron sulcatus *Jur.*

CERAPHRON *Jur., Spin., Lat., Leach.*

Antennæ inserted near to the mouth, longer in the male than female, geniculated, 11-jointed in both sexes, pubescent, and attenuated in the male, the basal joint the most robust, not so long as the 3rd, 2nd very small, 3rd the longest, the remainder slightly decreasing in length to the last (1); filiform or subclavate in the females, the basal joint the longest, 2nd as long as the 4th, the 3rd long, the remainder slightly decreasing in length to the last, which is elongate-oval (1, a). *Labrum* undetected. *Mandibles* slender, bent, bifid and slightly pilose (3).

Maxillæ short, membranous, horny only on the outside, terminated by a broad rounded lobe. *Palpi* very long and *exserted*, 5-jointed, 3 first joints nearly of equal length, the 1st slender, 2nd and 3rd dilated, subovate, 4th and 5th very slender, the former nearly as long as the latter which is the longest (4).

Mentum elongated, horny, the angles emarginate to receive the *Palpi*, which are not longer than the lip, clavate and apparently triarticulate, the 2 first joints very minute, the 3rd ovate, pilose. *Lip* large rounded and pubescent (5).

Head *suborbicular, frequently depressed.* Eyes *remote.* Ocelli 3. Thorax *ovate or oblong;* prothorax *transverse and not suddenly narrowed.* Scutellum, *elongate-conic;* postscutellum *sometimes toothed in the centre.* Abdomen *attached by a broad and very short* peduncle, *ovate-conic, composed of 7 joints, the 1st striated at the base and frequently covering more than half the body.* Wings *pubescent, anterior with a thickened costal nervure, terminated (in the type) by a large stigma, producing a curved branch.* Thighs *sometimes a little thickened.* Tibiæ *spurred.* Tarsi 5-*jointed, the basal joint long.* Claws *and* Pulvilli *distinct* (8, *a fore leg*).

Obs. *The dissections are taken from a male of* C. Dux, nob., *excepting fig.* 1, *a, which is the female antenna of the same species.*

HALIDAYI *Nob.*

Male black, shining. Antennæ as long as the wings, 11-jointed, basal joint large ochreous, 2nd globose, the 4 following producing each, a long clavate branch pilose at the apex, the 3rd and 4th joints very short, 5th and 6th longer, 7th the longest, slightly branched at the apex, the remainder more robust, subovate, the 8th being slightly produced on the internal side, the 11th elongate ovate. Head transverse, large, punctured. Eyes large remote. Ocelli distinct. Thorax punctured, with 3 lines on the back meeting at the scutellum. Abdomen very smooth and shining, tinged with ochre and slightly furrowed at the base. Wings hyaline, iridescent, pilose, basal half of the costa thickened, the stigma large semiorbicular, producing a curved branch, all fuscous. Legs ochraceous; thighs, middle pair fuscous above; posterior pair of legs fuscous. *Female* unknown.

In the Cabinet of Mr. Haliday.

So little are these minuter Hymenoptera understood, that this genus has never been recorded even as British; and it is remarkable that only one species has ever been described by continental writers. I have now seen upwards of sixty species taken by Mr. Haliday, Mr. F. Walker, and myself. It is evident that they do not vary in figure and character less amongst themselves, than they do from the typical form, as will be shown by the following divisions with which Mr. Haliday has kindly furnished me. The insect dissected I preferred to the type, not only because it is the largest of the genus, but from my being acquainted with the sexes.

Div. 1. Antennæ 11-jointed; wings with the stigma subtrigonate or suborbicular. The Antennæ shorter, the scape longer and the apex incrassated in the females.

1. C. Dux *Nob.* Length two lines, breadth three. Black, shining, base of tibiæ and tarsi ferruginous. Superior wings with a fuscous cloud. Mr. Haliday, Ireland.
2. opacus *Hal. MSS.* Mr. Haliday, Ireland.
3. cimicoides *Hal. MSS.* m. Sept. Holywood, Downshire.
4. rufiscapus *Nob.* Norfolk.
5. rufipes *Nob.* Norfolk.
6. nitidus *Nob.* Mr. Walker.
7. sulcatus *Jur. pl.* 14.—24th July, pales, Hampstead Heath.
8. puliciformis *Nob.*
9. crispus *Hal. MSS.* Aug. Holywood.
10. Carpenteri *Nob.* Black, head and thorax pubescent, body shining; apex of thighs, tibiæ and tarsi ochreous. Antennæ in the male similar to those of the same sex in *Eurytoma abrotani.* I have the pleasure of naming this curious insect after Thomas Carpenter, Esq. who bred it from female *Aphides.*
11. elegans *Nob.* Mr. Walker.
12. Halidayi *Nob. pl.* 249. This beautiful little insect I have dedicated to A. H. Haliday, Esq. a zealous advocate of Entomology, whose knowledge of these beautiful tribes is only equalled by the liberality with which it is imparted to others for the advancement of science. It was taken the 8th of Aug. near Holywood.
13. gracilis *Nob.* Mr. Haliday.

Div. 2. Apterous.

14. C. ruficollis *Hal. MSS.* May, Kensington Gardens.
15. Rubi *Nob.* e. Aug. upon bramble leaves, near Heron Court, Hants.
16. melanocephalus *Hal. MSS.* June, Oct. Shady groves.

Div. 3. Wings with a linear branch, but no stigma.

17. longipennis *Nob.* Mr. Haliday and Mr. Walker.

Div. 4. Antennæ 10-jointed.

18. C. ferrugineus *Hal. MSS.* July 8, Holywood.
19. discolor *Hal. MSS.* Aug. Sept. Holywood.
20. nubilipennis *Nob.* Mr. Walker and Mr. Haliday.

The plant is *Lathyrus pratensis* (Meadow Vetchling).



TELEAS ELATIOR.

Order Hymenoptera. Fam. Proctotrupidæ *Nob.* Oxyuri *Lat.*

Type of the Genus, Teleas clavicornis *Lat.*

Teleas *Lat., Curtis.*—Scelio *Lat.*

Antennæ approximating, inserted close to the clypeus on each side a tubercle, geniculated and pubescent, 12-jointed; as long as the body, and filiform in the *males;* basal joint long, 2nd minute, 3rd not so long as but more robust than the basal joint, 4th shorter, 5th and following elongate ovate, terminal joint conical, as long as the 4th (1): shorter in the *females* and clavate, basal joint very long, 2nd slender but not much shorter than the 3rd and 4th which are robust and oblong, 5th and 6th cup-shaped, the remainder forming an elongate-conic club (1 a). *Labrum* undiscovered.

Mandibles very much curved and bifid, the internal tooth having a smaller one on the inside (3).

Maxillæ with the basal part large and subtrigonate, terminated by a semioval coriaceous lobe, slightly pilose externally. *Palpi* short triarticulate, basal joint subclavate, 2nd shorter obtrigonate, 3rd as long as the other two, subclavate pilose (4).

Mentum elongate-trigonate. *Lip* none or concealed. *Palpi* remote forming one small elongate obovate joint, producing 3 bristles (5).

Head *suborbicular a little produced in front forming a ridge between the* Eyes *which are lateral globose, and not prominent.* Ocelli 3 *in triangle, quite at the back of the head.* Trunk *obovate:* prothorax *very short.* Scutellum *mucronated at the apex.* Pleuræ *with the angles acute.* Abdomen *narrowed at its base, more or less oval, somewhat depressed, the margins beneath thin and sharp; 6-jointed, the 3rd being very large; the male organs sometimes exserted.* Wings *pubescent,* superior *spatulate, the radius or costal nervure extending two-thirds of their length, and terminating in a short obtuse ray entering the wings: 2 nervures near the base are slightly indicated:* inferior *small sublanceolate, the costa thickened half way.* Legs *slender, anterior the shortest.* Thighs, *hinder sometimes incrassated especially in the females.* Tibiæ *simple, with short spurs.* Tarsi 5-*jointed, basal joint the longest, terminal not much longer than the penultimate.* Claws *acute.* Pulvilli *long and slender* (8† *hind leg of male*).

Elatior *Haliday MSS.—Curtis's Guide, Gen.* 583. *n.* 2.

Male, black, shining, slightly pubescent. Head striated, with an elevated ridge between the eyes: thorax thickly punctured, clothed with yellowish depressed pubescence: scutellum mucronated: metathorax coarsely punctured: abdomen beautifully striated, strongest and coarsest at the base: wings iridescent, with a pale fuscous tint, costal nervure piceous: knees and tips of tibiæ ferruginous. *Female* unknown.

In the Cabinets of Mr. Haliday and the Author.

There cannot be a greater proof of the general neglect of the Hymenoptera in this country, than the fact that this numerous and interesting genus of insects, which has been described and published by Latreille upwards of twenty years, has not been even recorded as British in any of our works, excepting the "Guide." Nineteen species are there named, and in Mr. Haliday's collection alone I have seen fifteen others undescribed.

The remarkable margin to the body beneath, forming a sharp edge, is common to Scelio, Sparasion, Teleas and Platygaster. From these genera Teleas is distinguished, by having a costal instead of a subcostal nervure, which terminates in a short branch in the superior wings. In Ceraphron the large stigma to the wings will characterize the greater portion, and the whole are separated from Teleas by their 5-jointed maxillary palpi and 11-jointed antennæ.

From Mr. Haliday's observations it appears that the genus may be thus divided:

I. With a punctiform stigma, situated beyond the middle of the wing.

1. T. varicornis *Hal.*—Is found in sandy places.
2. T. elatior *Hal.*—*Brit. Ent. pl.* 333.—Taken in June by Mr. Haliday on marshy ground.
3. T. lotus *Curtis.*
4. T. clavicornis *Lat.*—In sunny gravel-pits.
5. T. longipes *Curt.*
6. T. Ephippium *Hal.*—Found in August.
7. T. flavipes *Hal.*
8. T. femoratus *Curt.*
9. T. niger *Curt.*
10. T. fumipennis *Curt.*
11. T. fuscipennis *Walk.*
12. T. minutus *Curt.*
13. T. Æthiops *Hal.*

II. With a longer and angulated nervure branching off from the costa near the middle.

14. T. ater *Curt.*—This may be only a black variety of the next.
15. T. metallicus *Hal.*—Has been taken by Mr. Haliday amongst Junci on the banks of stagnant pools, and in the water, July 31st; and by Mr. F. Walker at Southgate on Lime-trees in September, and on the banks of ponds and brooks just above the water in October.

III. Apterous.

16. T. longicornis *Curt.*
17. T. pusillus *Curt.*
18. T. Pulex *Hal.*
19. T. brevicornis *Hal.*
20. T. parvulus *Hal.*

The plant is *Arenaria serpyllifolia* (Thyme-leaved Sandwort).



SCELIO RUGOSULUS.

ORDER Hymenoptera. FAM. Proctotrupidæ *Nob.*—Oxyuri *Lat.*

Type of the Genus, Scelio rugosulus *Lat.*

SCELIO *Lat., Curt.*

Antennæ inserted in a cavity at the base of the clypeus, approximating, longer than the head, geniculated robust pubescent and 10-jointed in the male (1); basal joint long, 2nd and 3rd of equal length, and longer than the following which are rather transverse, terminal joint ovate; 12-jointed in the female (1 a), the basal joint is longer than in the male, and the clavola is more incrassated.

Labrum undiscovered.

Mandibles slender, bifid and pilose (3).

Maxillæ with the stipes large, triangular, and meeting behind the mentum, terminated by 1 or 2 transparent membranous lobes, thickened and pilose externally. *Palpi* short and slender, triarticulate, basal joint not short, 2nd subovate pilose, 3rd rather long pilose and oval at the apex (4).

Mentum subturbinate-elongate. *Palpi* arising from near the anterior angles, not very short, triarticulate, basal joint obovate, 2nd subglobose, 3rd the longest suboval and slightly pilose. *Lip* small hollow and pubescent (5).

Head *broad subglobose.* Eyes *lateral not large.* Ocelli 3, *remote, placed triangularly.* Trunk *a little broader than the head;* prothorax *very short:* scutellum *large lunulate.* Abdomen *attached by a portion of its base, elongate-ovate, depressed.* Wings *pubescent, superior* (9), *with only* 1 *nervure running from the base (not quite parallel to the costa), nearly half their length, where it forms a hook towards the disc, upon which is a callous but undefined stigma; there are indications also of other nervures.* Legs *moderate.* Thighs *incrassated.* Tibiæ; *anterior not very short, with a long curved spine at the inner angle of the apex, the others spurred.* Tarsi *scarcely longer than the tibiæ,* 5*-jointed, basal joint the longest and beautifully pectinated on the inside in the anterior pair, penultimate joint the shortest.* Claws *and* Pulvilli *distinct* (8).

RUGOSULUS *Lat. Gen. Crust. v.* 4. *p.* 32.—*Curtis's Guide, Genus* 584.

Black, shining, slightly clothed with short, depressed, pale pubescence. Antennæ slightly fuscous. Head and trunk reticulated. Abdomen finely and closely sulcated. Wings iridescent, pale fuscous, the nervures pale brown. Tibiæ dull ferruginous, the 4 posterior black in the middle. Tarsi ferruginous, terminal joint and claws black.

In the Cabinets of Mr. Walker and the Author.

Scelio is another of Latreille's genera which has not been recorded in any British work excepting the "Guide to an Arrangement of British Insects;" with the continuation of which I shall now proceed, I hope, without further delay.

Scelio bears a considerable resemblance to Sparasion (plate 317), but is distinguished from it by the 10-jointed antennæ of the male, as well as by the form of the maxillæ and their palpi. I have been able to detect by dissection twelve joints in the antennæ of the female (fig. 1. a.); and having at the same time extracted the ovipositor, no doubt can remain of its being that sex: this, as well as the third joint of the labial palpi, were apparently unknown to Latreille.

There is but one species belonging to the genus Scelio: I first took a male near Niton, in the Isle of Wight, the middle of September 1826; and Mr. Francis Walker has since found a female upon a window at Southgate, in the month of July.

Scelio rugosulus, as well as *Sparasion frontale* (lately figured), is found in the neighbourhood of Paris, generally upon the ground in fields. I took a specimen of the latter insect upon a wall near Marseille, the end of last June.

The plant is *Cheiranthus fruticulosus* (Wall-flower), from Dover Cliffs.



PLATYGASTER BOSCII.

Order Hymenoptera. Fam. Proctotrupidæ *Nob.* Oxyuri *Lat.*

Type of the Genus, Scelio ruficornis *Lat.*

Platygaster *Lat., Curt.*—Scelio *Lat.*—Ichneumon *Kirby*—Psilus *Jur.*

Antennæ inserted close to the base of the clypeus, as long as the thorax, geniculated, 10-jointed, basal joint very long and rather robust, 2nd and 3rd of equal length, the former oval, the latter oblong, 4th shorter, 5th and 6th small cup-shaped, the remainder forming a distinctly articulated club, 7th joint cup-shaped, 8th and 9th subquadrate, 10th subovate (1).

Labrum undiscovered.

Mandibles curved, broad and bifid at the apex (3).

Maxillæ with the basal portion large scutiform and corneous, terminated by a membranous ovate lobe, thickened and rather pilose externally. *Palpi* inserted at the base of the lobe and extending a little beyond it, linear and biarticulate; basal joint short, 2nd considerably longer producing 2 bristles at the apex (4).

Mentum obconic, terminated by a broad membranous *Labium*, at the base of which on each side rise the *Palpi*, they are short and formed of one elongate-ovate joint, furnished with one or two bristles (5).

Head *transverse, suborbicular, concave behind.* Eyes *lateral and not very prominent.* Ocelli 3. Thorax *subovate.* Scutellum *mucronate, or obtuse and tuberculiform.* Abdomen *somewhat depressed, spathuliform, considerably narrowed at the base, sometimes acute at the apex; composed of 6 or 7 joints, the 2nd being more than equal in size to the remainder.* Wings *without nervures, or at most with a short subcostal one.* Legs *generally slender.* Thighs *clavate.* Tibiæ *clavate and spurred at the apex; anterior with a curved membranous and bifid spine at the apex.* Tarsi *5-jointed, basal joint long.* Pulvilli *as long or longer than the* Claws (8).

Obs. *All the dissections were drawn from* P. Boscii.

Boscii *Jur. Hym. p.* 318. *Curtis's Guide, Gen.* 585. *n.* 16.

Black smooth and shining. Antennæ with the 2nd joint brown. Head hollow on the crown. Ocelli remote. Thorax ovate. Scutellum obtuse. Abdomen very glossy, ovate-lanceolate (6), with a long horn (*b*) produced at the base and curved over the thorax as far as the head, upon which it can rest, striated, especially towards the base (a), 2nd joint flat in the centre and channelled at the base and on the sides which are thickened. Wings very pubescent and iridescent, superior with a short nervure at the base, not touching the costa, clubbed at the apex. Base and apex of the tibiæ and the tarsi subferruginous.

In the Author's and other Cabinets.

The injury done to the wheat in 1795 by the *Tipula Tritici* (Cecidomyia B. E. 178) led to some valuable and interesting observations published in the Linnean Transactions, whence we learn that one, if not more, species of Platygaster are destined to prevent the too extensive increase of the Tipulæ. As it would be impossible to do justice to Mr. Kirby's remarks without transcribing the whole of his papers, we shall recommend the perusal of them as well to the agriculturalist as to the naturalist and philosopher.

Mr. Walker has captured 50 species of this genus, and Mr. Haliday has favoured me with the loan of his collection, and proposes the following divisions.

I. Scutellum produced or mucronated.

1. P. filicornis *Hal. MSS.*

2. P. Phragmitis *Schr. Ins. Aust. p.* 321. *n.* 647. Inhabits the panicles of *Arundo Phragmites.*

3. P. ruficornis *Lat. Hist. Nat. v.* 13. *p.* 227.

4. P. velutinus *Hal.*

5. P. hyemalis *Curt.*—Taken out of moss found in Coombwood, the first week of January, by Mr. A. Mathews. It is rather larger than *P. Tipulæ;* the tips of the thighs, tibiæ and tarsi (excepting the fore legs) and antennæ are black.

6. P. Tritici *Hal.*

7. P. Tipulæ *Linn. Trans. v.* 4. 232. *&* 5. 108. *tab.* 4. *f.* 8 *&* 9. On grass in June, and on the glumes of the wheat in July, when it deposits its eggs in the larvæ of *Cecidomyia Tritici.*

II. Scutellum obtuse, tuberculiform.

8. P. inserens *Kirby, Linn. Trans. v.* 5. *p.* 107. *tab.* 4. *f.* 4—7.—June 7th, depositing eggs in the valvules of the corolla of the wheat, and when they hatch, attaching themselves probably to the larvæ of *C. Tritici.*

9. P. anthracinus *Curt. Guide.*

10. P. unicolor *Curt. Guide.*

11. P. brunnipes *Curt. Guide.*

12. P. consobrinus *Curt. Guide.*

13. P. obscurus *Walk. MSS.*

14. P. attenuatus *Hal. MSS.*

15. P. elongatus *Hal.*—June and July, on grass at Southgate.

16. P. inermis *Hal.*

17. P. niger *Hal.*

18. P. Boscii *Jur.—Curtis.*—This remarkable insect is supposed by Mr. Haliday to be the female, and he suspects that the males have no horns. Mr. Walker takes it from June to August amongst grass in woods at Southgate; it also inhabits umbellate flowers.

The plant is *Triticum* (*Agropyrum* Beauv.) *repens,* var. (Couch-grass).







J. Curtis. July 1. 1837

MYMAR PULCHELLUS.

ORDER Hymenoptera. FAM. Proctotrupidæ.

Type of the Genus, Ichneumon Punctum *Shaw.*

MYMAR *Hal., Curt.*—Ichneumon *Linn.?—Shaw.*

Antennæ inserted in front of the head, rather remote, very long, filiform and 13-jointed in the male, basal joint long, slender in the middle, clavate at the base and thickened before the apex, 2nd joint short obovate, 3rd and remainder nearly as long as the first joint, slightly tapering, terminal joint a little shorter, elliptic-conic (1): as long as the body, and geniculated in the female, clavate and 9-jointed, basal joint longer and stouter than in the male, but similar in form, 2nd short obovate, 3rd and 4th very slender, the former scarcely longer than the 2nd, the latter longer than the 1st, the 4 following submoniliform, gradually increasing in size and length, 9th joint the stoutest, subelliptic (1 ♀). *Mandibles* tridentate (3).

Head *subglobose.* Eyes *round, lateral, not prominent, coarsely granulated.* Thorax *subovate, gibbous and narrowed anteriorly.* Abdomen *generally attached by a long slender pedicle; inserted at the lower portion of the base, obovate, the upperside being very much arched:* oviduct *short but exserted* (6). Wings; *superior long and without nervures, the costa thickened, apex ciliated with long hairs;* inferior *either very narrow or merely a short rigid nervure.* Legs *long and slender.* Thighs *incrassated in the middle.* Tibiæ *a little thickened towards the base and apex, with a minute spine at the apex.* Tarsi 4-*jointed, basal joint the longest, 3rd scarcely shorter than the 4th which is a little dilated at the apex, and terminated by minute* Claws *and* Pulvilli (8, *a fore leg*).

Obs. *The dissections and descriptions are taken from the species figured.*

PULCHELLUS *Walk.—Curt. Guide, Gen.* 586. 12.

Ochreous shining, slightly pubescent: eyes black: wings, superior formed of a long costal nervure, producing a blackish membrane only at the apex, the basal half of which is white and transparent, the edges and apex pilose with a longitudinal line of bristles, the margin beautifully ciliated with long hairs; inferior rudimentary only: terminal joint of tarsi fuscous.

In the Cabinets of Mr. Walker, Mr. Haliday, and the Author.

AMONGST other peculiar characters that mark this group, the tetramerous tarsi, and the structure of the wings, especially the inferior, which in some species form only a rigid nervure, must not be overlooked. In dissecting the head I discovered a mandible which was tridentate as represented in the plate, and I thought I could distinguish a mentum and maxillæ, but not a vestige of palpi.

These singular little insects are not unfrequently found on windows, where Mr. Dale has captured many curious species. Mr. Haliday has formed them into a genus, and Mr. F. Walker has favoured me with the following outline of his views on the arrangement of the British species.

I. Abdomen petiolated. A. Wings ciliated.

* Base of the superior wings represented by the costal nervure alone: inferior rudimentary, confined to the costal nervure.

12. M. pulchellus *Walk.*—*Curt. Brit. Ent. pl.* 411.—July and August; dry sunny banks and grass in fields in September, Southgate.

** Wings perfect.

† Ovipositor exserted, longer than the abdomen.

12[a]. M. atripennis *Walk.*—June, amongst grass in a wood.

†† Ovipositor concealed beneath the abdomen.

The species of this division are found amongst grass in fields from May to September. They walk slowly.

5. M. longipes *W.*—June and July.
4. M. Ovulorum? *Linn. F. S.* 1644.
10. M. fimbriatus *W.*
7. M. flavipes *W.*—June.
9. M. niger *W.*

B. Wings not ciliated.

8. M. dimidiatus *Hal.* 15th Sept.—There are 12 others named by Mr. Walker: they jump slightly, move faster than the species of the preceding division, and inhabit the same localities.

II. Abdomen sessile. A. Wings not ciliated.

These are found with the species of the preceding division, at the same periods and in the same situations. They run very fast; but do not jump, it is supposed.

2. M. acuminatus *Curt.*
1. M. fuscicornis *W.*
16. M. Atomus? *Linn. S. N.* 2. 941. 76.
6. M. pusillus *W.*—June, windows.

B. Wings ciliated.

The species of this division are very minute, and may be found from June to October on windows.

13. M. cucullatus *Curt.*
3. M. Punctum *Shaw.*—*Linn. Trans. v.* 4. 189. *pl.* 18. *f.* 1.
14. M. pallidus *Curt.*
15. M. longicornis *Curt.*
11. M. minimus *Walk.*

C. Wings none.

19. M. apterus *Walk.*—New Lanark, Scotland.
17. M. Monas, and 18. M. Termo, I do not know, and Mr. Walker has 30 more species named.

The Plant is *Viola palustris* (Marsh Violet).



740.

SPALANGIA NIGRA.

ORDER Hymenoptera. FAM. Spalangidæ.

Type of the Genus, Spalangia nigra *Lat.*

SPALANGIA *Lat., Spin., Nees ab Es., Hal., Curt.*

Antennæ inserted at the extremity of the head, on each side of the clypeus, geniculated, pubescent and 10-jointed, longer than the head and thorax, filiform in the male (1 ♂), basal joint very long, 2nd short somewhat funnel-shaped, 3rd much longer, 6 following turbinate, 10th as long as the 3rd and conical; shorter and a little clavate in the female (1 ♀), 2nd joint longer than the 3rd which is subovate, 6 following somewhat cup-shaped, increasing in diameter, 10th the stoutest ovate-conic.
Labrum undiscovered: clypeus forming a distinct oval mass (C), slightly hairy before, with a large membranous lobe beneath (2).
Mandibles subtrigonate, curved and bifid at the apex (3).
Maxillæ terminating in a large hairy lobe. *Palpi* shortish and biarticulate, basal joint subclavate, 2nd longer and slenderer, with a few bristles (4).
Mentum long and narrow, subelliptic. *Palpi* attached to the anterior angles, short, biarticulate, basal joint subclavate, 2nd shorter, ovate-conic, with a few bristles. *Lip* long and narrow, the apex rounded (5).

Head *drooping, ovate, slightly elongated, with a large oval fovea in front; attached by a short neck: eyes lateral and oval, villose:* ocelli *large,* 3 *arranged in a curve.* Thorax *very long, broadest at the base:* collar *long narrow and lunate;* scutel *semiorbicular, with a transverse line of strong punctures at the base:* petiole *short and stout, longest in the male, cylindric and striated.* Abdomen *oval, not longer than the thorax,* 3*rd segment the longest, apex acute, acuminated in the female.* Wings *pubescent superior spatulate, the costal nervure touching the margin before the middle, and continued beyond it, terminating in a fork formed by a short ray:* inferior *wings narrow, lanceolate.* Legs *moderate, slender, hinder a little the longest, their* coxæ *pear-shaped, sometimes with a short curved spine on the inside of the apex:* thighs *and* tibiæ *slender, the latter with a long notched spine at the apex of the* 1*st pair, the others with very slender spurs at the apex:* tarsi *slender and* 5*-jointed, basal joint the longest, incrassated in the anterior,* 3 *following short, especially the* 3*rd and* 4*th,* 5*th short and stout:* claws *curved, acute, the base a little dilated:* pulvilli *rather long.*

NIGRA *Latr.—Curt. Guide, Gen.* 589, 3.

In the Author's and other Cabinets.

Spalangia is an interesting group, distinguished from all the other pentamerous Chalcididæ by its biarticulate palpi. The allied genus Cerocephala being apterous is readily distinguished from the typical Spalangiæ, and the very minute and imperfect labial palpi of Pirene form the essential character of that curious genus. Mr. Haliday observes that this group has a slight resemblance in habit to Megaspilus (Ceraphron, pl. 249). It having appeared to me that this insect would connect the Oxyuri or Proctotrupidæ with the Cynipidæ or Chalcididæ, I placed it between those two extensive groups in my Guide; but the difficulties attending a natural arrangement of such unlimited families have led to a variety of opinions concerning their affinities. It seems to me that there are 4 species of Spalangia, and I very much regret not having received the nondescripts in time to figure one of them.

1. **hirta** *Hal. Ent. Mag.* 1. 334. 1.

"Head and thorax almost entirely punctate-reticulate, densely villose. Length of body, 14; of wings, 2."

Taken in England.

2. **nigra** *Lat.—Curt. Brit. Ent. pl.* 740 ♀.

Shining black; the head with a large smooth shining fovea in front, the rest punctured, as well as the thorax, which is slightly pubescent and sometimes greenish, disc and scutel perfectly smooth; abdomen faintly violaceous: wings iridescent, scarcely tinged with brown, nervures brown; base of **tarsi bright ochreous. Length from 1 to 1½ line.**

Found in pastures and marshes amongst the grass, also on the foliage of trees not uncommonly, from the middle of April to August, in every part of the country, and even in the gardens of London.

Bouché says the larvæ inhabit the pupæ of the common house-fly, *Musca domestica*, eating the intestines.

3. **nigripes** *Curt. MSS.*

Black, head and thorax slightly tinted with green, abdomen a little violaceous; basal joint ochreous only in the anterior **tarsi: length 1½ line.**

A female has been taken by Mr. Shuckard.

4. **nigroænea** *Curt. Guide, n.* 4.

Black, bronzed and greenish, hinder portion of the abdomen chalybeous: antennæ stoutish: wings yellowish brown, base and tips of tibiæ and tarsi bright ochreous, the latter **with the apex blackish: length 1½ line.**

A male in Mr. Shuckard's collection, and I have seen another elsewhere.

Asparagus officinalis, Common Asparagus, was transmitted to me by Dr. Bromfield, who gathered specimens last July on the sandy shore at Norton in the Isle of Wight.




1a
1
a
b
c
b
5
4
5

133.

EULOPHUS DAMICORNIS.

Order Hymenoptera. Fam. Cynipidæ *Lat., Leach.*

Type of the Genus Ichneumon pectinicornis *Linn.*

Eulophus *Geoff., Oliv., Lat., Kirby.*—Diplolepis *Fab.*—Cleptes *Fab.*—Ichneumon *Linn., De Geer.*

Antennæ inserted between the eyes, below the middle of the face, not longer than the thorax, geniculated, 9-jointed in the male, 1st joint long robust, 2nd minute obovate, 3 following filiform, each having a slender, very pilose branch, arising from the base, 6th filiform, the remainder forming an ovate, acute club of 3 joints (fig. 1); simple and 8-jointed in the female, 3rd joint oblong, 4th and 5th oval, 3 following forming a conical elongated club (1 a).

Labrum very minute?

Mandibles with 3 or 4 teeth. *Lat.* Gen. Crust.

Maxillæ membranous, dilated below the palpi (4), forming a concave lobe above (4 a). *Palpi* with a few bristles at the apex, 3-jointed (4 b).

Mentum dilated in the middle (5). *Palpi* 3-jointed, terminated by a few bristles (5 b). *Lip* short, ciliated (5 c).

Head *triangular vertical, as broad as the thorax, with 2 oblique grooves uniting above to receive the basal joint of the antennæ.* Eyes *lateral.* Ocelli 3 *in a depressed triangle.* Thorax *large ovate, prothorax rounded, metathorax sloped off.* Scutellum *suborbiculate.* Abdomen *subovate, narrowed at the base, depressed, concave above, margins elevated, apex mucronate in the male unarmed in the female.* Wings *large, transparent, pubescent; superior with an abbreviated costal cell, the costal nervure branched towards the middle; inferior small sublanceolate, nerveless.* Coxæ *posterior very large corneous.* Legs *subcoriaceous, simple.* Tibiæ *with a spine at the apex.* Tarsi 4-*jointed, basal and 3rd joints short in the* 4 *posterior, 2nd and 4th longer, terminated by* Pulvilli. Claws *arising behind the apex* (8, *a fore leg*).

Damicornis *Kirby Linn. Trans. v.* 14. *p.* 112.

Male. Antennæ with the 1st and 2nd joints pale yellow, remainder dull ochre. Eyes black. Head and thorax deeply punctured, aureous green. Abdomen smooth, violaceous, black, with an ochraceous spot near the base. Wings iridescent. Coxæ posterior punctured, aureous green. Legs very pale yellow. Pulvilli brown.

Female. Abdomen with the apex and a large spot at the base ochraceous. Wings slightly fuscous in the middle. Thighs, posterior fuscous near the middle.

In the Cabinets of Mr. Kirby and the Author.

Mr. Kirby having but one specimen of the male, the legs of which I could not clearly see, and having kindly given me females which I could relax, I have drawn the latter sex of this pretty and rare insect, which perfectly agrees with the former excepting the simple antennæ, the spot on the posterior thighs, and a slight cloud upon the wings. I could not (from the same cause) satisfy myself perfectly of the club of the antennæ being composed of 3 joints in the male as I did in the female, neither do I feel positive that the branches are not articulated. The extreme minuteness of the mouth prevented me from obtaining the labrum and mandibles, which I was very anxious to accomplish as the *Cynipsidæ* are less complete in their organization than most of the Hymenoptera; their wings are nerveless, and their palpi and tarsi composed of fewer joints than usual.

Mr. Westwood having discovered a new species, the description of which he has obligingly communicated as well as some useful remarks, and having another nondescript in my own cabinet, I shall give a short account of all the species.

1 E. ramicornis *Fab.*, *De Geer*, *Geoff. v.* 2, *p.* 313, *t.* 15, *f.* 3.
Entirely of a beautiful golden green with yellow legs—$1\frac{1}{3}$ line long.
Bred from pupæ attached to the leaves of lime-trees.
In the cabinets of Mr. Kirby and Mr. Haworth.

2 E. damicornis *Kirby.* described as above.
Bred the beginning of August from larva of *Ptilodontis camelinus?*

3 E. Latreillii *nob.*
Female. Head, thorax and petiole bright green, abdomen violaceous black, bright green at the base, with a small whitish spot below the base, legs and 2 first joints of antennæ nearly white—$\frac{3}{4}$ line long.
Bred from pupæ of *Tinea Cramerella* Fab.
In the Author's cabinet.

4 E. Kirbii *Westwood's MSS. nob.*
Black with a dull white subpellucid spot at the base of the abdomen—$\frac{1}{2}$ line long.
3 males were taken from a hazel-bush in a small wood near Ashford, Kent, August 1825, by Mr. W.
In the cabinets of Mr. Westwood and the Author.

5 E. pectinicornis *Linn.*, *Fab.*, *De Geer*, *v.* 1, *p.* 589, *t.* 35, *f.* 1—7.
Dull black—$\frac{1}{2}$ a line long.
Bred 9th Oct. by the Baron De Geer out of *Tinea* pupæ.
Taken by Mr. Westwood from the white-thorn when in blossom, near Wimbledon Common, May 1825.
In the cabinets of Mr. Kirby and Mr. Westwood.

The plant is *Veronica agrestis* (Germander).









ENCYRTUS VITIS.

Order Hymenoptera. Fam. Cynipidæ.

Type of the Genus, Encyrtus scutellaris *Dalm.*

Encyrtus *Lat., Dalm., Curt.*—Mira *Schel.*—Ichneumon and Chrysis *Rossi.*

Antennæ inserted towards the lower part of the face, remote, geniculated, pilose clavate and composed of 13 joints; basal joint very long in the female, distinctly articulated with a slender scape, 2nd and 3rd minute rings, 4th elongate obtrigonate, the remainder gradually increasing in diameter and decreasing in length until they become cup-shaped, the 3 last joints being closely united, somewhat compressed and truncated at the apex (1 ♂); more slender in the male, basal joint shorter, annelli very indistinct, the following joint obtrigonate, the next and succeeding oblong clothed with very long hairs, the three terminal joints closely united and forming an elongate conical club (1 ♀).

Labrum undiscovered.

Mandibles concavo-convex, broad and thin, rounded at the apex and slightly hooked, producing a few long hairs (3).

Maxillæ small terminated by a large rounded pilose lobe with a smaller one on the inside. *Palpi* more slender than the labial, rather long and 4-jointed, 1st and 2nd joints of equal length subclavate, 3rd much shorter obovate, 4th the longest and stoutest, subfusiform and very pilose (4).

Mentum small oblong, subovate at the apex. *Palpi* attached to the anterior margin, approximating, rather stout, pilose and biarticulate, basal joint obovate, 2nd rather larger, ovate-conic. *Lip* rather long and narrow (5).

Head *broad hemispherical, concave behind.* Eyes *rather large but remote.* Ocelli 3 *in triangle situated at the back part of the crown.* Collar *short.* Scapulæ *minute.* Fræna *transverse, almost concealed.* Scutellum *large, sometimes bearded at the apex.* Abdomen *short, depressed, more or less ovate-conic;* petiole *indistinct.* Wings *pubescent;* superior *rounded, with a subcostal nervure extending to the middle where it forms a short branch into the wing;* inferior *rather short and narrow.* Legs *very dissimilar, compressed, anterior pair short:* thighs *long and slender in the intermediate pair:* tibiæ *rather broad, furnished with a spine at the apex, which in the intermediate pair is long and robust and the tibia is narrower and subclavate* (8*): tarsi *long, 5-jointed, basal joint the longest:* pulvilli *large and membranous with 2 minute claws.*

Obs. The dissections are taken from a female of *E. Vitis.*

Vitis *Nobis.—Curtis's Guide, Gen.* 598, *n.* 1[a].

In the Cabinets of Mr. Samouelle and the Author.

This singular and extensive genus is distinguished from the other Cynipidæ by the branch of the wing springing from the apex of the subcostal nervure, as well as by the long spurred intermediate legs. In this genus the form of the antennæ is

not a sure guide, for not only do they frequently vary exceedingly from the type, but those of the male are sometimes very dissimilar to the female.

Mr. Haliday, to whom I am so much indebted for his valuable contributions and information, distinguishes Encyrtus by its minute scapulæ and transverse frœna, almost concealed by the dorsolum. From his dissections I see that the mandibles of his *Encyrtus Coniferæ* are tridentate, and his genus ERICYDNUS is characterized by "compact fusiform antennæ. Wings with the subcostal nervure branched towards the apex. Abdomen beneath compressed, acuminate."

I must refer to the "Guide" for a list of the British species amounting to 28, only one of which has even been *recorded* by any other English writer.

1. E. scutellaris *Dalm.* in the Stockholm Trans. for 1820. *pl.* 2. *f.* 57. 58. 62. and 63.

Bred out of a Coccus found on the *Corylus Avellana*.

1ª. E. Vitis *Curt. Brit. Ent. pl.* 395.

Male: dull black, slightly pubescent and punctured; antennæ filiform and very pilose, terminated by a slender club; ochreous, 2nd joint and the club blackish: head with large punctures: scutellum with a tuft of hair at the apex: abdomen with the membrane at the base whitish: wings iridescent, transparent, nervures subochreous, costal one brown: legs ochreous, posterior pair compressed, blackish, inside of the thighs, tibiæ and central joints of tarsi ochreous.

Female: reddish orange, slightly pubescent and punctured: antennæ with the flagellum compressed and gradually dilated to the apex which is black, and truncated: head sparingly punctured with large shallow impressions: scutellum with a black tuft of hairs at the apex, the sides beneath brown: abdomen reddish brown: wings transparent, superior clouded with fuscous beyond the middle; nervures, a spot before the middle and the stigma brown: tibiæ, intermediate brown at the base, posterior compressed, the outer edge blackish, the tarsi brown at the base and tip.

For specimens of this insect and the following observations I am indebted to Mr. Samouelle, who bred them from the Coccus of the Vine, and has no doubt that the black one, which is much the rarest, is the male; this somewhat resembles the *E. hirticornis*, and the female the *E. Swederi* of Dalman.

"Found on the Vine in Lambeth, July 9th and 10th, 1830. These insects settle on the underside of the vine-leaves during rain, and on the upper surface when the sun shines; they are fond of door-posts, and seem to seek the heat. I also find them in the house on the windows; they leap well, at least a foot at a time: the antennæ, when the insect is active, are applied alternately to the object on which it rests."

6. E. cyaneus *Dalm.? p.* 160. 12.—lunulatus *Curt. MS.*

June and July. Bred from a bundle of cocoons attached to a leaf and covered with cottony yellow wool, like that which envelopes some spiders' eggs.

28. E. Urocerus *Dalm.* This, as well as a new species of Mr. Haliday's, has the ovipositor robust and exserted.

The Plant is *Cyperus fuscus*, from J. J. Bennet, Esq.


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596.

STENOCERA WALKERI.

ORDER Hymenoptera. FAM. Cynipidæ.

STENOCERA *Walk., Curt.*

Antennæ inserted below the middle of the face, not quite so long as the head and thorax, slender, nearly filiform, geniculated and 10-jointed, basal joint long, 2nd obovate, 3rd elongated, the remainder decreasing a little in length, the apex conical.

Head *suborbicular, notched in front:* eyes *remote, prominent, suborbicular:* ocelli 3, *large and forming a spacious triangle in front of the crown.* Thorax *oblong, depressed;* collar *elongated, narrowed, sublunate:* scutellum *large, suborbicular, each side of the base excised.* Abdomen *sessile, long, subfusiform, concave, apex pointed.* Wings, *superior with a subcostal nervure divided beyond the middle, but forming only a little button not a ray:* inferior *short, narrow and lanceolate.* Legs *short and slender:* tibiæ, *anterior the shortest, intermediate the slenderest, with a spine at the apex, hinder pair the broadest, being compressed:* tarsi 5-*jointed, intermediate a little the shortest and stoutest, hinder the longest:* claws *and* pulvilli *minute.* Male *unknown.*

WALKERI *Curt. Guide, Gen.* 612. *n.* 1.—*Brit. Ent. pl.* 596. ♀.

Finely shagreened, coppery-purple above, bright green beneath, sides of the head, thorax and the whole metathorax of the same colour: antennæ black: head with a broad deep groove from the crown to the clypeus, with a chalybeous stripe down the middle of the face; mesothorax and scutellum concave: abdomen shining, the tip green, wings iridescent, the nervure fuscous; coxæ, hinder pair bright green; thighs bluish-green, tipped with ochre; base and apex of tibiæ ochreous, intermediate legs of the same colour, with the base of the thighs and a suffused space on the tibiæ, piceous; terminal joints of all the tarsi brownish.

MR. F. WALKER took 2 females off Lime and Oak-trees at Southgate the middle of July, one of which he presented to me.

When I first began to study this and the following species I thought they would form 2 sections of a genus, but as I proceeded such important differences presented themselves, that I found the formation of 2 genera would be unavoidable, and having only one specimen of *Stenocera* I have been under the necessity of confining myself to a description of the external characters, but more elaborate ones are given of *Calosota.*

Type of the Genus, Calosota vernalis *Walk.*

CALOSOTA *Walk., Curt.*

Antennæ inserted below the middle of the face, remote, geniculated, as long as the thorax, nearly filiform, compressed, pubescent and 13-jointed in both sexes, basal joint very long, 2nd

pyriform truncate, 3rd shorter oblong, 7 following oblong, as long as the 2nd but stouter, the three terminal joints forming an elongated subelliptic mass, most evident in the female (1 ♀). *Labrum* undiscovered.

Mandibles subtrigonate, truncated and somewhat trifid at the apex, the external tooth conical (3).

Maxillæ terminated by an oblique ovate lobe ciliated externally. *Palpi* rather short and slender, pubescent, 4-jointed, basal joint small, 2 following subovate, 4th long, subfusiform, with a slight shoulder on the inside, from whence it is bristly to the apex (4). *Mentum* triangular-conic. *Lip* rounded, not large. *Palpi* rather remote at their insertion, short, triarticulate, basal joint the longest, pyriform-truncate, 2nd subglobose, 3rd ovate and hairy (5).

Head *rather transverse:* eyes *lateral, large and ovate:* ocelli 3 *in triangle on the fore part of the crown.* Thorax *elongate-ovate:* collar *narrowed and a little elongated; disc of thorax flat or concave:* scutellum *large gibbose and ovate, truncated at the base.* Abdomen *sessile, hollow above, elongate-ovate in the male* (A ♂), *longer and acuminated in the female:* ovipositor *sometimes a little exserted.* Wings *rather short, superior with the costal nervure furcated towards the apex.* Legs *rather short and slender, intermediate as long as the hinder, but not so stout:* tibiæ, *anterior the shortest, intermediate with a large spine at the apex, hinder pair with small ones:* tarsi 5-*jointed, intermediate with the* 1*st and* 2*nd joints incrassated, the former elongated, the latter cordate:* claws *and* pulvilli *minute.* (8*, *intermediate leg*).

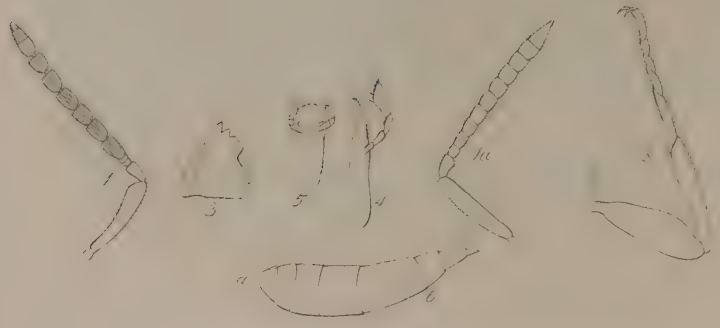
1. vernalis *Walk.* Shagreened, greenish-copper; antennæ black, basal joint green; head black, face of female very bright green, the centre violet, cheeks bright cupreous: abdomen cupreous above: wings hyaline, nervures slender and lurid: apex of thighs and a large portion of the apex of tibiæ, especially the intermediate, ferruginous-ochre; tarsi brownish, a little ochreous at the base: ♂ 1¼ line, ♀ 2¼ long.
2. æstivalis *Walk.* Duller than *C. vernalis*, the antennæ, legs, and nervures of wings thicker; disc of wings ferruginous brown, costal branch a little hooked at the apex: legs dark green, knees, the external tip of the tibiæ and base of tarsi ochreous: ♂ 1¾ lines, ♀ 2½ long.

July, decayed Oak-trees, Southgate, Mr. F. Walker.

The trophi of these insects agree best with those of Callimome (fol. 552), at least of the genera illustrated in this Work; but in habit perhaps they make a nearer approach to Eupelmus, especially in the formation of the intermediate legs and slightly exserted ovipositor, but these are points which must be left for Mr. Walker to decide as he advances in his Monograph.

For the beautiful drawing of *Rosa hibernica* (the Belfast Rose), I am indebted to Miss Haliday.




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CLEONYMUS MACULIPENNIS.

ORDER Hymenoptera. FAM. Cynipsidæ *Lat., Leach.*

Type of the Genus Diplolepis depressa *Fab.*

CLEONYMUS *Lat.*—Cynips *Lat.*—Pteromalus *Dal.*—Diplolepis *Fab.*—Ichneumon *Linn., Fab.*

Antennæ inserted in the middle of the face, longer than the head, geniculated; 13-jointed and filiform in the *male*, basal joint very long and stout, 2nd small, 3rd and 4th ring-shaped, 5th and remainder submembranous pilose, cup-shaped, the 3 last forming a conical mass, (fig. 1): 12-jointed in the *female*, thickened towards the apex, the 3rd being the shortest, the 5th nearly as long as the 4th, the remainder of equal length, the last being longer and conical (1 a).

Labrum none?

Mandibles alike, subtrigonate, notched on the internal side, and having 3 teeth near the apex (3).

Maxillæ long, terminated by a lobe rigid and ciliated externally, dilated and membranous internally. *Palpi* rather short, 4-jointed, basal joint small, 2nd and 3rd longer of equal length, 4th twice as long and hatchet-shaped, truncated obliquely and pilose (4).

Mentum oblong. *Palpi* arising from cavities in the anterior margin of the mentum, short, 3-jointed, 2nd joint minute, 3rd oval pilose. *Lip* short, rounded (5).

Head *orbicular and convex in front; transverse above.* Eyes *small.* Ocelli 3, *in a depressed triangle.* Prothorax *bilobed, narrower than the remainder.* Scutellum *rounded.* Abdomen *sessile obconic, depressed in the males, elongated in the females with a long channel beneath to receive the ovipositor,* (6 *a, the base*). Wings *longer than the body in the males, transparent, often spotted or clouded, pubescent, ciliated; superior with a nervure running from the base parallel to the costa, half way, whence it is continued along that margin a short space and then becomes furcate.* Legs *slender, posterior pair appearing very far behind, from the great length of the* Coxæ. Thighs, *middle pair slender, posterior incrassated.* Tibiæ *simple.* Tarsi 5-*jointed, basal joint the longest.* Claws *hooked.* Pulvilli *distinct* (8, *a fore leg*).

Obs. *The dissections are from a male of* C. maculipennis; *the abdomen and antenna* (6 *and* 1 *a*) *from a female* C. depressus?

MACULIPENNIS *Nob.*

Male green with a cupreous tinge. Antennæ very pubescent, brown, 1st and 2nd joints ochraceous. Head and thorax thickly punctured. Abdomen perfectly smooth and shining, a deep channel in the middle from the base, where it is ochraceous, the shoulders being elevated and green, the apex pubescent, black with a cupreous shade. Wings iridescent, the superior with 2 large black spots on each, one in the centre, the other nearer the apex. Legs ochreous. Thighs, posterior very robust.

In the Cabinets of Mr. Cooper and the Author.

The trophi of *Cleonymus* are so very similar to those of *Colax*, that we should not have established the latter genus had not other characters presented themselves: it is true that the mandibles of the former are stronger and have but two distinct teeth, and the terminal joint of the maxillary palpi is shorter and more dilated; but on comparing the males of the two genera, more decided characters will be found to distinguish them, and such we trust as will fully justify their separation. The males of *Colax* are marked by a very large head, a ring-shaped prothorax, an obovate abdomen and slender thighs; the same sex of *Cleonymus* has a moderately-sized head, a bi-lobed prothorax, an obconic and thick abdomen, and robust anterior and incrassated posterior thighs. We regret that the want of female specimens has prevented us from perfecting our specific descriptions, as well as from entering into a further investigation of that sex, than to observe that the abdomen is longer, more depressed and less compressed and angulated beneath than in the genus *Colax*, and that the female antennæ (at least in the specimens before us) are thickened gradually to the apex; they have not the ring-shaped third joint which that genus has, nor do the three last joints form a distinct mass.

So completely have these insects been neglected, that very few species of *Cleonymi* have been described, and only one that I can find figured. It is most likely that the genus is very extensive; but my own cabinet contains only seven species, all of which are females, excepting the one figured in our Plate.

1. C. depressus *Fab.—Coq. Illus. Ins. tab. 5. f. 5.*
2. maculipennis *Nob.*

For specimens of this beautiful insect, which appears to be a nondescript, I have to acknowledge my obligations to A. Cooper, Esq., who took four males the latter end of June, on the trunk of a decayed Elm near Knight's Hill Cottage, Dulwich.

The plant is a tetrandrous variety of *Euonymus europæus* (Spindle-tree).



166.

COLAS DISPAR.

Order Hymenoptera. Fam. Cynipidæ *Lat.*, *Leach.*

Type of the Genus Colas dispar *Nob.*

Colas *Nob.*—Cleonymus *Lat.*—Pteromalus *Dal.*—Diplolepis *Fab.*—Ichneumon *Linn.*, *Fab.*

Antennæ of the *male* longer than the head, geniculated, inserted in the middle of the face; 13-jointed, pilose, basal joint long, 2nd small cup-shaped, 3rd and 4th like rings, the 6 following cylindric, decreasing in length, the remainder forming a long, indistinctly articulated conic compressed club (fig. 1) :—of the *female* longer than the head, geniculated, pubescent, 12-jointed, basal joint long, 2nd short clavate, 3rd very minute, 6 following subquadrate, decreasing in length, the remainder forming a conical mass (1 a).

Labrum not discovered.

Mandibles subquadrate, one with 3, the other with 4 teeth (3).

Maxillæ long, terminated by a single concave lobe, coriaceous and hairy externally, membranous and ciliated internally. *Palpi* rather long and slender pilose 4-jointed, basal joint rather longer than the 2nd and 3rd which are of equal length, 4th long subfusiform, slightly produced at the insertion of the bristles (4).

Mentum obconic. *Lip* rather long, rounded, ciliated. *Palpi* as long as the lip, 3-jointed, 2nd joint very minute, terminal one elongate-conic, pilose at the apex (5).

Head *transverse much larger in the male than female.* Ocelli 3. Thorax *transverse, not so broad as the head.* Scutellum *rounded.* Abdomen *short, depressed, spatulate in the males; long attenuated to the apex, angulated beneath in profile in the females* (6, *a, the base*). Oviduct *concealed.* Wings *as long or longer than the body in the males, pubescent, ciliated, transparent; superior with a nervure running from the base parallel to the costa, not so far as the half, whence it is continued along that margin, and becomes furcate before arriving at the apex.* Legs *slender.* Coccæ; *posterior large.* Thighs *nearly straight.* Tibiæ *simple with a single spine at the apex.* Tarsi 5-*jointed, basal joint the longest, terminal most robust.* Claws *hooked.* Pulvilli *large* (8, *a fore leg*).

Dispar *Nob.*

Male. Head and thorax bright bluish green, minutely punctured. Eyes fuscous. Antennæ ochraceous. Abdomen metallic green, subcupreous at the base, with a large ochraceous spot above the middle. Wings iridescent, nervures pale ochre. Coccæ green at the base. Legs ochraceous: apex of tarsi and pulvilli fuscous. *Female.* Head and thorax dull bluish green. Eyes dull castaneous. Antennæ fuscous, basal joint ochraceous. Abdomen chalybeous, sometimes inclining to green, blackish towards the middle and near the apex. Coccæ green. Legs ochraceous; thighs green except at their extremities; tibiæ brownish at the base, apex of tarsi fuscous.

In the Author's Cabinet.

We believe the group under investigation has been united by Dalman with the *Pteromali*, a genus of Latreille's allied to *Perilampus*; but *Colas* is nearer, perhaps closely allied to *Cleonymus* of the latter author which embraces those species with clouded wings, truncated antennæ, the abdomens of the females being similarly shaped to ours, but longer; from being unacquainted with their males, we cannot at present enter further upon the subject. From other genera of the same family, the one before us seems to be sufficiently distinct, and easily distinguished when the sexes are known. The authority on which we give the two insects in the plate as sexes of the same species, is tolerably satisfactory; but so far from wishing that it should be received as conclusive, we would invite those who are interested in the subject to pay attention to the lepidopterous *Chrysalides* producing these pretty insects, which will enable them to supply invaluable information upon a family whose economy is highly interesting and but imperfectly understood.

In the 136th plate of this work the caterpillar of *Acronycta Salicis* is given; and from one of these (which spun itself up in a web, but died before it became a pupa, in consequence of its being inoculated by these parasites) we obtained, the beginning of the following June, about half a dozen males and twice as many females; and amongst 10 or 12 more species of this genus, few of which appear to be described, is a pair that I took last September upon the *Achillea Millefolium*, in the Isle of Wight, not differing in form but essentially in colour.

Colas is derived from the Greek, and alludes to the parasitic economy of this group; and the specific name of *dispar* is characteristic of the disparity of the sexes.

Our insects were inhabitants of the Trossacks, and specimens of the plant figured, *Viola lutea* (a variety of the yellow Mountain Pansy), were tolerably abundant on the north and east sides of Schichallien the beginning of July.


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PHAGONIA SMARAGDINA.

ORDER Hymenoptera. FAM. Cynipidæ.

Type of the Genus, Phagonia flavicornis *Hal.*

PHAGONIA *Hal., Curt.*—Pteromalus *Dal.*

Antennæ approximating, inserted near the middle of the face, as long as the thorax, pilose, geniculated and 13-jointed in the males (1), basal joint very long, 2nd short subpyriform, 3rd and 4th minute, cup-shaped, 6 following oblong remotely articulated, the remainder forming an indistinctly articulated, elongate-conic club, the terminal joint the smallest.

Labrum undiscovered.

Mandibles oblong, truncated obliquely, with 4 teeth nearly of equal size (3).

Maxillæ with the basal portion dilated, terminated by an oval lobe, membranous on the inside, horny and pilose outside and at the apex. *Palpi* large and triarticulate, basal joint long and curved, 2nd considerably longer, both slender, 3rd very large, ovate or orbicular and concave, forming a thin bowl (4).

Mentum elongate-ovate. *Lip* a little dilated and rounded. *Palpi* extending a little beyond the lip, triarticulate ? basal joint as long as the 3rd clavate, 2nd minute, 3rd conic, furnished with a few bristles at the apex (5).

Head *large orbicular and transverse.* Eyes *small and lateral.* Ocelli 3, *very minute.* Thorax *narrower than the head; collar narrow:* scutellum *large and rounded.* Abdomen *very short and attached by a short thick peduncle, somewhat orbicular-truncate, 5?-jointed, terminated by a style.* Wings; *superior ample with a submarginal nervure reaching the costa at the middle and extending to the apex, with a short obtuse ray between the middle and apex; inferior with only a costal nervure.* Legs *similar, anterior the smallest.* Thighs *a little thicker than the* Tibiæ, *the anterior of which have a spine at the apex.* Tarsi, *posterior shorter than the tibiæ, 5-jointed, basal joint a little longer than the 2nd, 4th a little smaller than the 3rd and 5th.* Pulvilli *membranous and distinct.* Claws *minute* (8, *a fore leg*).

SMARAGDINA *Curt. Guide, Gen.* 631.

Bright blueish green, excessively thickly punctured; eyes black, mandibles ochreous; antennæ and palpi orange, the former yellow at the base, 2nd joint and palpi fuscous at the base: Abdomen of metallic lustre, peduncle blackish and punctured: wings with the nervures lurid: legs ochreous, coxæ green, thighs and base of tibiæ yellow, the upper edge of the posterior thighs and tips of tarsi brown.

In the Cabinet of Mr. F. Walker.

Mr. Haliday first proposed the genus Phagonia, which is recorded in my Guide; and as its singular structure renders it interesting, and neither figure nor description of it having been published, it is hoped that the present notice will be acceptable to those engaged in the study of this beautiful and extensive family of Hymenoptera.

Dalman in a slight Conspectus of his genus Pteromalus mentions 3 of his species having entirely yellow antennæ with incrassated palpi, under the names of *chilodes*, *patellanus*, and *palpalis;* but as no characters are given, it is impossible to say whether our species be the same as his.

I am indebted to Mr. Haliday and Mr. Walker for specimens of the type, which may be thus described:

1. P. flavicornis *Hal.—Curt. Guide, Gen.* 631. 1.

Length 1 line, or a little longer: bright golden green, excessively thickly punctured: eyes black; palpi orange, mandibles pale ochreous, tipped with black: antennæ ochreous, black at the apex, 2nd joint brownish at the base: abdomen metallic, polished, 2nd joint violaceous, peduncle æneous black and punctured: wings with the nervures lurid. Legs deep and bright ochre, coxæ green, tips of tarsi brown.

Taken in June and July by Mr. F. Walker on Ferns in woods at Southgate.

The following is the description of the insect supposed by Mr. Walker to be the female:

Length $1\frac{1}{4}$ line. Brilliant green with a golden tinge: excessively thickly punctured: eyes and antennæ black, the latter ochreous at the base: palpi small and blackish: mandibles ochreous: abdomen rhombiform, metallic, polished, with a violaceous tinge towards the apex: wings with the nervures lurid: legs ochreous, coxæ green, trochanters and thighs, excepting the tips of the latter, black; tarsi brown at their apex.

Taken with the last.

2. P. smaragdina *Curt. Brit. Ent. pl.* 427 ♂.

A single example of this new species was found by Mr. F. Walker in a currant-bush at Southgate in June.

The Plant is *Fumaria capreolata* (Ramping Fumitory).



SMIERA MACLEANII.

ORDER Hymenoptera. FAM. Cynipidæ or Chalcididæ.

Type of the Genus, Sphex sispes *Linn.*

SMIERA *Spin., Curt.*—Chalcis *Fab., Dal., Lat., Jur., Panz.*—Sphex *Linn.*

Antennæ inserted at the middle of the face, as long as the head and thorax, geniculated, 13-jointed, basal joint long and stout, 2nd and 3rd small, the former cup-shaped, the latter transverse, 4th longer than the following which decrease in length, the 3 terminal joints forming a subconical mass (1 ♂); the basal joint longer in the female and the apical mass more ovate (1 ♀).

Labrum exserted, small, transverse, the sides rounded, anterior margin ciliated with longish hairs (2).

Mandibles short, one trifid (3), the other bifid at the apex.

Maxillæ terminated by an oblique oval and ciliated lobe. *Palpi* rather long slender pilose and 4-jointed, basal and 3rd joints rather short, 2nd longer, 4th very long and subfusiform (4).

Mentum elliptic, truncate before and notched to receive the *Palpi* which are not short; triarticulate, 2nd joint a little shorter than the 1st, 3rd a little longer and pilose, subovate at the apex (5).

Head *broad and short, emarginate before, with a tooth in the middle:* eyes *lateral prominent and globose:* ocelli 3 *in triangle.* Thorax *ovate-truncated before;* collar *distinct;* scutellum *bidentate.* Abdomen *small, trigonate-ovate, compressed, attached by a long stout petiole, 7-jointed in the male* (7 ♂), *8-jointed in the female:* oviduct *concealed beneath.* Wings, *superior with a few indistinct longitudinal nervures, a subcostal nervure, united with the costa at the middle and forming a small peduncled cordate stigma a little beyond it;* inferior *wings small.* Hind legs *very large, the* Coxæ *as long as the* Thighs *which are lentiform and serrated beneath; the* Tibiæ *scythe-shaped, pointed and acute at the apex.* Tarsi 5-*jointed.* Claws *and* pulvilli *small.* (8, *hind leg, the first joint being the Coxa.*)

MACLEANII *Curt. Guide, Gen.* 653. 3.

In the Author's Cabinet.

SMIERA is distinguished from Eucharis by its curved posterior tibiæ, and from Chalcis by the length of the petiole. I suspected from the manner in which the *S. sispes* hovers about and settles upon the rushes, that the female laid her eggs in larvæ either upon or inside the stalks, but we learn from Latreille that these insects "deposit their eggs in the nymphæ of the Stratiomydæ or of some other diptera, the larvæ of which live in the water."

I shall now describe the British species.

1. S. sispes *Linn. F.S. n.* 1657.—clavipes *Fab.*—*Panz.* 78. 15. —*Sam. pl.* 8. *f.* 6.—*Don.* 11. 379.

Black, thickly and coarsely punctured, abdomen smooth and shining: wings pale fuscous: posterior coxæ very long and a little stouter than the peduncle: 4 anterior thighs ferruginous at the apex, the intermediate pair incrassated at the apex, hinder pair large, lenticular and rufous, black at the apex, serrated beneath, the basal tooth the largest: tarsi ferruginous, black at the tips.

As this is the Linnæan species, I have retained its original name. I am sorry to find continental naturalists superseding old established names, for the right of priority will always be respected by the true friend of science. This insect is found from June to the end of July on rushes at the back of the Red House, Battersea; Kensington Gardens; near Faversham, Kent; on umbellate flowers, Whittlesea Mere, Mr. Dale; sides of ditches, Tollsbury, Essex, J. C.

In the two following species the antennæ of the females seem to be only 12-jointed.

2. S. Macleanii *Curt. Brit. Ent. pl.* 472 ♀.

Black, thickly and coarsely punctured, clothed with fine pale hairs; antennæ clavate; scutellum emarginate, peduncle half the length of the abdomen, which is smooth and shining: wings stained brown, costal nervures piceous; scapulars and tips of 4 anterior thighs pale yellow, posterior minutely punctured, serrated beneath, with 2 larger teeth at the base, the external one pale yellow, as well as a sublunulate one towards the apex and a round one opposite on the inside; base of anterior tibiæ ochreous, the tips ferruginous as well as the tarsi which are brown at the apex. *Male* undiscovered.

I have named this fine insect after Dr. Maclean, of Colchester, whose zeal for science and ardour in the pursuit of knowledge have led to many discoveries that entitle him to the thanks of all lovers of Natural History. It appears to be very similar to the *C. biguttata* of Spinola and the *C. melanaris* Dalm., from which it is at once distinguished, by the 3rd spot towards the apex on the *inside* of the hinder thighs, as well as by other differences of colour. I first discovered *S. Macleanii* the end of June, settling on the rush figured, in a ditch at Tollsbury; Mr. Bennet soon after took another in company with the *S. sispes*, and Dr. Maclean captured a third.

3. S. petiolatus *Curt.*—sispes *Fab.*—*Panz.* 77. 11.

Black, thickly and coarsely punctured, scutellum slightly emarginate, petiole long, slender and yellow; body smooth and shining; a yellow spot on each side the face, scapulars of the same colour: thighs yellow, black at the base, posterior with a saddle-shaped black mark above at the base, and a brown one at the apex: tibiæ yellow, 4 anterior brown at the middle, posterior piceous except at the tip: tarsi ochreous: antennæ of male rather long stout and subfusiform, the basal joint the slenderest; short slender and clavate, I believe, in the female.

Said to have been captured in the neighbourhood of London.

This being the *C. sispes* of Fab., who very carelessly transposed the names, it is become necessary to give the species another appellation to prevent further confusion.

The Plant is *Scirpus maritimus* (Salt-marsh Club-grass).




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PERILAMPUS PALLIPES.

ORDER Hymenoptera. FAM. Cynipsidæ *Lat.*, *Leach.*

Type of the Genus Cynips Italica *Fab.*

PERILAMPUS *Lat.*—Diplolepis *Fab.*, *Panz.*—Chalcis *Jur.*, *Panz.*—Cynips *Fab.*, *Oliv.*, *Lat.*

Antennæ alike in both sexes, approximating, inserted in the middle of the face, geniculated, pubescent, 13-jointed; basal joint long slender, 2nd small cup-shaped, 3rd like a ring, the remainder forming a long robust, subfusiform mass, the first joint the longest, the 6 following cup-shaped, the 3 last sometimes obscure, the apical one minute conical (fig. 1).

Labrum concealed beneath the clypeus, very minute, quadrate, emarginate producing spines terminated by bristles (2).

Mandibles large concave, one being trifid (3), the other bifid (3*).

Maxillæ long, terminated by a single concave lobe, coriaceous and hairy externally, membranous and ciliated internally. *Palpi* long, filiform, basal joint longer than the 2nd or 3rd, which are of equal length, terminal joint the longest, subfusiform, slightly bent, pilose, sinuated internally (4).

Mentum elongated, conical posteriorly. *Lip* rather long concave, edges conniving. *Palpi* long, 3-jointed, basal joint the longest, clavate, 2nd minute, 3rd elongate conic, pilose (5).

Clypeus *distinct.* Head *short, vertical, as broad as the thorax:* face *orbicular, concave above to receive the basal joint of the antennæ.* Eyes *rather small lateral.* Ocelli 3, *in a curved line.* Thorax *transverse cylindric, prothorax very short.* Scutellum *large more or less triangular, projecting over the* Abdomen *which is short depressed, rhomboidal or triangular.* Ovipositor *concealed.* Wings *as long as the abdomen, pubescent, transparent, superior with a nervure running from the base, parallel to the costa as far as the middle, where it extends a short space along that margin, and is furcate at the extremity; inferior small, sublanceolate, with a nervure parallel to the costa, extending only half their length.* Legs *slender.* Thighs *slightly clavate, nearly straight.* Tibiæ *simple terminated by 2 spines.* Tarsi 5*-jointed, basal joint a little the longest, terminal incrassated.* Claws *and* Pulvilli *distinct* (8, *a fore leg.*)

PALLIPES *Nob.*

Female. Head minutely punctured, æneous; face black; eyes cinereous; antennæ ferruginous, 1st and 2nd joints black. Thorax and scutellum dull brassy green, regularly reticulated. Abdomen quadrangular, chalybeous, slightly pubescent. Wings scarcely stained with yellow, iridescent, nervures fuscous. Legs violaceous, apex of thighs and a portion of the apex of the anterior tibiæ, especially on the inside ochraceous, tarsi of the same colour; pulvilli black.

Male smaller, abdomen obovate or conic, obtuse.

In the Cabinets of Mr. Stephens and Mr. Bainbridge.

1 Brit. C. P. p. 183, 10 exp.

Perilampus, a genus containing several European species, was separated from *Cynips* and established by Latreille in his *Genera Crustaceorum*. The wings of the *Cynipsidæ* seldom furnish generic characters; and in many other tribes of *Hymenoptera*, their structure is not available for separating small groups, they consequently become rather characteristic of families or of tribes; and this led Jurine (whose system was built upon their conformation) into the error of uniting the Fabrician genera of *Ichneumonidæ*, and considering that vast group as a genus. The same system compelled him to sink many excellent genera amongst the bees, and prevented him from admitting of any material division in the *Cynipsidæ* or *Diplolepidæ*. The antennæ however, when carefully examined, will supply the deficiency by furnishing the best generic characters for general use; for although we believe that the trophi are of the first importance, it is not possible for the student to examine those parts in every specimen; and characters obtained from more convenient parts will enable him to decide upon affinities after a genus is firmly established by dissection. At present we shall not enter into the merits of our genus: it may not be amiss, however, to remark, that the singular manner in which the labrum is produced into spines, and the same disposition in the terminal joint of the maxillary palpi, have not been before noticed.

The metallic hue of the bodies render the *Perilampi* striking and beautiful objects, although inferior in splendour to their neighbours. They are parasitic, feeding in the larva state upon caterpillars, and forming an oval cocoon, which Reaumur represents suspended from a branch by a thread.

The species figured not agreeing with Fabricius's description of *Cynips ruficornis*, which is said to have a black head and thorax, nor with Panzer's *Chalcis violacea*, which has the 4 anterior legs entirely ochraceous, we have considered it as a nondescript, and called it *P. pallipes*, from its pale feet. Mr. Bainbridge took a male at Darent; and the female figured was taken off an umbelliferous plant by Mr. Joseph Standish at Dover the end of last July.

The pretty plant in the plate, *Antirrhinum spurium* (Round-leaved Fluellin), was gathered upon the heights at Dover.







CALLIMOME SUBTERRANEUS.

ORDER Hymenoptera. FAM. Cynipidæ *Lat.*

Type of the Genus, Ichneumon Bedeguaris *Linn.*

CALLIMOME *Spin., Walk., Curt.*—Torymus *Dal.*—Misocampus *Lat.*—Diplolepis *Fab.*—Cynips *Fab., Lat.*—Ichneumon *Linn., DeG., Fab.*, &c.

Antennæ geniculated, considerably longer than the head and inserted a little below the middle of the face, in a cavity receiving the 1st joint, pubescent and 13-jointed, basal joint long, 2nd short, somewhat obconic, 3rd saucer-shaped, 4th stout oblong, the remainder decreasing in length and becoming a little transverse, the 3 last forming a compact compressed ovate-conic mass (1 ♂, 4 basal joints); longer in the female, 3rd joint subglobose, 4th elongated (1 ♀).

Mandibles subtrapezate, truncated and trifid at the apex, and a little hairy outside (3).

Maxillæ terminated by a large ovate lobe, very hairy at the margin. *Palpi* longer than the maxillæ, 4-jointed, 3 first joints of equal length and oblong, 4th long, subfusiform and clothed with long hairs (4).

Mentum long and narrow, ovate at the base, attenuated to the apex. *Labium* as long as the mentum, a little dilated at the base and apex. *Palpi* not longer than the lip, pilose and triarticulate, 1st joint obconic, 2nd shorter, subquadrate, 3rd as long or longer than the 1st and conical (5).

Head *transverse, face orbicular-trigonate:* eyes *lateral, ovate:* ocelli 3 *on the crown of the head forming a depressed triangle, the lateral ones remote.* Thorax *elongate-ovate;* collar *semiovate;* scutellum *large convex and subovate.* Abdomen *attached by a small portion only of the base, short, slightly depressed, and terminated by an acuminated process in the male, more compressed and 7-jointed in the female, basal joint large, apex truncated and furnished with an* Ovipositor, *generally as long as the insect* (A side view). Wings, *superior ample, rounded, with a nervure, uniting with the costa near the middle, and continued towards the apex, forming a very short obtuse branch midway; inferior wings short and narrow.* Legs, *hinder pair the longest and stoutest* (8 †): coxæ *all large:* trochanters *small:* thighs *short and a little incrassated:* tibiæ *simple, furnished with a single spur, excepting the posterior, which have a pair at the apex:* tarsi *slender and 5-jointed, basal joint long, 4th small:* claws *very much bent:* pulvilli *rather large.*

SUBTERRANEUS *Curt. MSS.—Guide, Gen.* 646.

In the Author's Cabinet.

SOME of these Insects I breed in vast quantities from the beautiful moss-like balls attached to the branches of the Dog-rose, called Bedeguar, and known in some parts of England by the

name of "Robin's Pincushions;" they are easily bred by placing the galls under a tumbler, and are beautiful objects for the microscope, for in elegance of form and beauty of colouring they can scarcely be surpassed. These mossy excrescences are supposed to be entirely formed by *Cynips Rosæ*, and our insects are said to feed on their larvæ, and most skilful parasites they must be, for in breeding them I have often obtained nothing but the Callimome, and it is very remarkable that from multitudes of the galls of the Wild Carrot I never bred any other insect than the *C. Dauci*.

In the Stockholm Transactions for 1820, and a subsequent vol., a synoptic table and descriptions of the species will be found; in the 1st vol. of the Ent. Trans. Mr. Walker has described 61 species, and 18 were recorded in the Guide.

3ª. subterraneus *Curt. B. E. pl.* 552. ♀.

Minutely shagreened; deep blue, head and thorax with rather large but shallow punctures, the latter variegated with violet; antennæ black, basal joint ferruginous, except at the tip; mouth and abdomen ferruginous-ochre; back black with a cupreous or violet tinge, excepting a band near the base, apex green; ovipositor ferruginous, sheaths pubescent and black above, tips whitish; superior wings with a pale yellow brown oval space on the disc; nervures piceous: legs and tips of coxæ, excepting the posterior, ferruginous-ochre; hinder tibiæ piceous, ferruginous towards the apex; tarsi ochreous, tips piceous. *Male* smaller, antennæ entirely black, and the abdomen without an ochreous band near the base.

Bred by Mr. E. A. Johnson from galls of the Beech-tree, formed by the larvæ of *Cynips aptera*, on which they are parasitic.

5. Geranii *Curt.* ♀ 1½ line long, ovipositor 1⅓ line; beautiful green, head rather cupreous; antennæ black, basal joint, excepting the tip, ochreous: abdomen with an ochreous band near the base, legs of the same colour, hinder coxæ green, ochreous at the tips and their tibiæ brownish towards the base: nervures yellowish brown.

Bred from the gall of a native Geranium.—J. C.

12. Arundinis *Curt.* ♀ Length 1⅓, ovipositor 1⅔: bright shining green; head aureous or cupreous, antennæ black, basal joint beneath ochreous, with a spot of the same near the base of the abdomen: legs yellow-ochre, coxæ green outside, faint in the anterior pair, base of tarsi whitish-ochre, tips brownish; nervures ochreous.

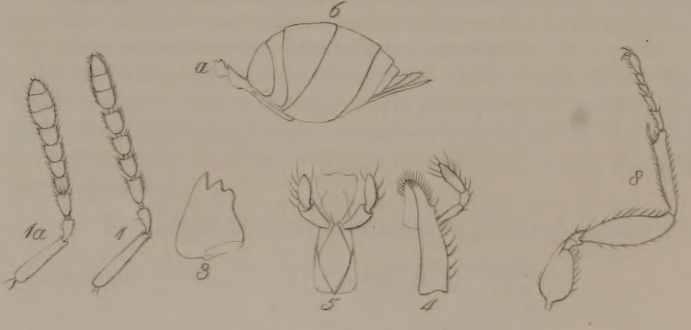
Middle of August on rushes, Blackgang Chine.—J. C.

15. Dauci *Curt.* ♀ 1½ line, ovipositor ⅔; green, antennæ black, basal joint straw colour beneath: legs whitish-ochre, thighs, excepting the tips, green, hinder tibiæ violaceous-black, except at the base and tips, apex of tarsi blackish, especially the posterior.

I observed, the middle of August, at the back of the Isle of Wight, vast numbers of the umbels of *Daucus Carota* producing galls; they contained bright orange-coloured larvæ, from which I bred a great number of this insect of both sexes the following September.

The Plant is *Rosa spinosissima* (Burnet Rose).





Pubd. by S. Curtis Feb. 1. 1831

345.

DECATOMA COOPERI.

ORDER Hymenoptera. FAM. Cynipidæ *Lat.*, *Leach.*

Type of the Genus, Decatoma biguttata *Swed.*

DECATOMA *Spin.*, *Curtis's Guide, Gen.* 650.—Eurytoma *Dal.*

Antennæ inserted in the centre of the face, geniculate, pilose, excepting the basal joint, which is received into a groove in front of the face, longer in the male than female; 9-jointed in the male, the 1st joint long, 2nd curved subpyriform, two annuli forming the base of the 3rd joint which is oval truncate, longer than the 3 following which are remotely articulated, the remainder forming a narrow elongated club, the apex producing very short spreading bristles (1): 10-jointed in the female, 1st joint long, 2nd slender, bent subpyriform, then follow I think 2 annuli, the 3rd joint obovate truncate, 4 following semioval, the remainder forming an ovate or conical club (1 a).

Mandibles subtrigonate, truncated obliquely and tridentate, the apical tooth acute, the internal one blunt (3).

Maxillæ long and narrow, rounded and ciliated at the apex, and producing a membranous dilated margin. *Palpi* slender, triarticulate, basal and 3rd joints long, the latter truncated obliquely and pilose, 2nd joint subovate (4).

Mentum rhomboid. *Lip* large, oblong, narrowed at the base, the anterior margin sinuated. *Palpi* large, biarticulate, basal joint truncate, 2nd subovate pilose (5).

Head *broad, short, slightly concave in front.* Eyes *large, lateral.* Ocelli 3. Trunk *oblong:* prothorax *large transverse.* Scutellum *rounded.* Wings *remote from the head, pubescent,* superior *large, obtuse, with a subcostal nervure, touching the costa beyond the centre where it forms a short branch.* Abdomen *very small, subglobose and attached by a long stout* petiolus *in the* male: *longer ovate, slightly compressed, the petiolus much shorter and the apex acuminated, with an* ovipositor *beneath in the female* (6; *a, the point of attachment*). Coxæ *large, producing a transparent plate at the apex of the anterior pair:* thighs *incrassated, especially the posterior:* tibiæ *spurred, posterior ciliated externally with a few spiny bristles:* tarsi 5-*jointed, basal joint the longest:* claws *bent:* pulvilli *distinct* (8, *a fore leg*).

COOPERI *Curtis.*

Female black, pubescent, very closely and coarsely punctured; under side of antennæ, tip of the 2nd joint and the apex ochreous; face of the same colour: collar with a narrow orange border, broadest before and interrupted behind; base of the wings orange: abdomen very smooth and shining: superior wings with a sublunular brown stigma, black at the costa, the nervures ferruginous: legs ochreous, posterior coxæ black, intermediate thighs with a streak of black, the posterior black except at the base and apex, posterior tibiæ black in the middle.

In the Cabinets of Mr. Cooper and the Author.

Decatoma is a genus proposed by Spinola, but I am ignorant of his characters: from the typical Eurytoma it is distinguished by the antennæ being clavate in the female; and the 2nd basal joint is very nearly as long as the 3rd, not reckoning the little rings; whereas in Eurytoma, the 3rd joint is frequently almost as long as the basal one, and very much longer than the 2nd. It is very important to remember, also, that the maxillary palpi are only triarticulate; for Mr. Haliday has observed, that they are composed of 4 joints in *E. longula?* Dal.

I shall characterize the species lent to me by F. Walker, Esq. of Southgate, where they were taken, I believe, on grass under trees.

1. D. Cooperi *Curtis's Brit. Ent. pl. 345. fem.*

For males of this pretty insect, I am indebted to A. Cooper, Esq., who beat them out of a hazel-bush, with one female, in September, close to the river Mole at Cobham.

2. D. biguttata *Swed.*—*Female* much smaller, but similar to No. 1: antennæ black, the tip of the 2nd joint only ochreous: face variegated with yellow: collar of the same colour, with a large trilobed black mark: abdomen with a yellow spot on each side, near the centre: legs pale ochre, variegated as in No. 1.

3. D. variegata *Walk. MSS.*—Similar to No. 2, but much smaller: the collar is yellow, with the centre and a spot on each side black, a yellow horse-shoe-formed mark above each upper wing: the hinder thighs have only a broad black ring round the middle, and the stigma is trigonate.

4. D. obscura *Walk.*—*Female* similar to No. 3, but the collar is almost entirely black: there is no yellow spot on the side of the abdomen, as in No. 2 and 3; the hind thighs and tibiæ are black, except the knees: stigma sublunulate, pale fuscous, black at the costa.

5. D. unicolor *Walk.*—*Male* much smaller: antennæ pale towards the apex: stigma small, black: tarsi and knees of hinder legs alone yellowish, the former fuscous at the apex.

6. D. minuta *Walk.*—*Male* similar to No. 5, but the face is variegated with ochre: there is an ochreous ring on each side the collar, and the tibiæ are ochreous, excepting the middle of the posterior pair, which is black.

7. D. mellea *Walk.*—*Male* as large as No. 2, ochreous: collar and head yellowish, both a little blackish at the base: scutellum variegated with black, and three large connected black spots on the back of the abdomen.

8. D.? penetrans *Kir.*—Brassy-black: abdomen bluish-black, compressed: apex truncated: aculeus subexserted.—*Linn. Trans. 5. 109. pl. 4. f. 10, 11.*

This minute insect is probably allied to the present group.

Corylus Avellana (Hazel-nut Tree), in flower, accompanies the insect.